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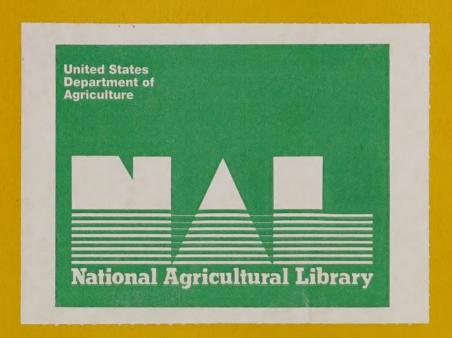
LAND RESOURCE BASE REPORT: COSTA RICA

prepared by the

Comprehensive Resource Inventory and Evaluation System Project

U.S. Department of Agriculture and Michigan State University

January, 1980



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FOREWORD

This Working Series report was developed by the Comprehensive Resource Inventory and Evaluation System (CRIES) project staff. Activities of the CRIES project in Costa Rica are funded under PASA #AG/TAB-236-14-76 between the U.S. Department of Agriculture and the Agency for International Development. Participation of Michigan State University is covered under Research Agreement #12-17-07-8-1955 between the Economics, Statistics, and Cooperatives Service of the U.S. Department of Agriculture and Michigan State University.

The CRIES project staff (constituted of personnel from the Soil Conservation Service (SCS, USDA), the Science and Education Administration (SEA, USDA), the Economics, Statistics, and Cooperatives Service (ESCS, USDA), and personnel from the Remote Sensing Project, Department of Resource Development, and Department of Agricultural Economics of Michigan State University) was responsible for project activities in Costa Rica. Mark Cochran, Research Specialist, Department of Agricultural Economics, and James B. Johnson, Agricultural Economist, ESCS, coordinated the preparation of information and reports for Costa Rica.

This report describes the land resource base of Costa Rica. The report is introduced by an overview of the taxonomic systems underlying the derivation of the Resource Planning Units. The Resource Planning Unit (RPU) and Production Potential Area (PPA) concepts are discussed. Methods and materials used for the soil, crop climate, and RPU classifications are reported. An RPU table for Costa Rica is presented. Supporting material also included in the report are a page-size RPU map of Costa Rica and the descriptive sheets for the map units on the soil map of Costa Rica (the latter as Appendix A).

Major portions of this report, including the RPU table, were prepared by Kenneth Ackerson of the CRIES project staff and the Soil Conservation Service, Alan Atchley of the CRIES project staff and the Science and Education Administration, and Ellis Knox, operating partner in Soil and Land Use Technology, Incorporated (consulting firm) and consultant to the CRIES project staff. The CRIES project efforts to assemble a soil map of Costa Rica were coordinated and joined with the efforts of the Natural Resource Division of the Office of Agricultural Sector Planning (OPSA), Government of Costa Rica. Ellis Knox, Samuel Perez (OPSA),

Residence of Every respect was developed by the Comprehensive Resource lavely tory and Eve inton System (CPIES) project stalf. Activities of the CRIES project Costa Rice are funded under PASA WAG TAB-236-14-76 between the United Copperation of Agriculture at the Atency for International Development. Particulture of Michigan State University is covered under Research Agreement #12-17-07-8-1455 between the Economics, Statistics, and Competatives Service of the University.

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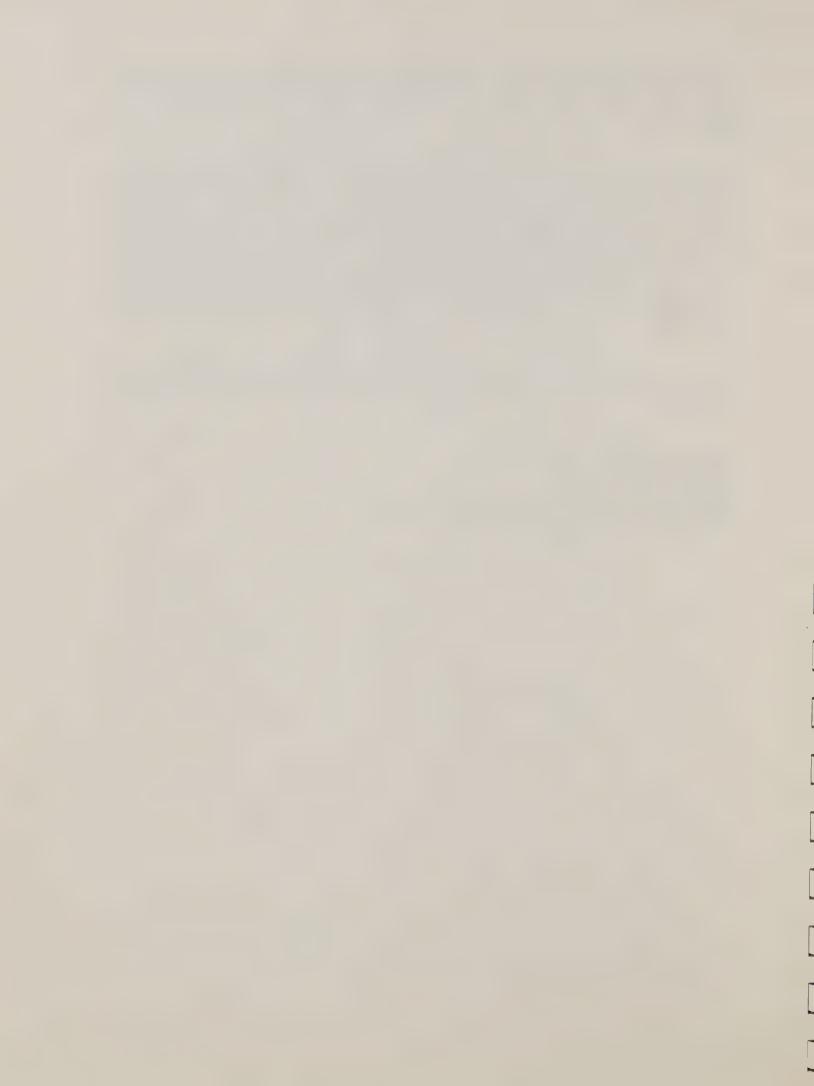
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and Alfredo Alvarado (University of Costa Rica) collaborated in assembling the soil map of Costa Rica that underlies the Resource Planning Units delineated in this report.

John W. Putman, Head of the CRIES project, contributed substantially to the writing of the taxonomic discussion of this report. Mark Cochran and Weldon Lodwick of the CRIES project staff provided suggestions, based on discussions with collaborators from the Technological Institute of Costa Rica at Cartago, on items that should be included within this report to assure its usefulness in agricultural resource planning and training activities in agricultural resource planning in Costa Rica.

Mrs. Susan E. Campbell, secretary to the CRIES project staff, typed all copies of this report.

James B. Johnson Agricultural Economist CRIES Project Economics, Statistics, and Cooperatives Service U.S. Department of Agriculture



LAND RESOURCE BASE REPORT: COSTA RICA

Land Resource Classification System

Introduction

The Agricultural Resource Information System will provide the capability to explore national questions about current and potential capacity to produce alternative levels and mixes of food, fiber, and export crops and associated levels of employment, income, and foreign exchange. The land resource base assessment will provide a partial basis for assessing the comparative advantage of the various resources in the production of agricultural commodities. The information on land use will provide a partial basis for doing comparative impact analyses of alternative programs and policies to evaluate the comparative advantage in the use of the agricultural resource base.

To provide for analyses of comparative advantage in the use of agricultural resources, it is necessary that the land resources be inventoried and aggregated into areas for which reasonable, unique estimates about land use, crop adaptations, crop productivity, management practices, and development options can be made. To facilitate incorporation of the land resource information into the Agricul-tural Resource Information System, it is also necessary that these resource units be geographically identified so they can be cross-referenced with other information on resource use, administrative boundaries, and other information useful and essential to assessing production potential and useful for planning, policy and program analyses, and implementation.

The need for both a homogeneous resource area and a geographically identified resource planning unit require that the Agricultural Resource Information System use a two-level system of land resource classification to accommodate these information management and analytical needs. The homogeneous resource unit is called a production potential area (PPA). The unit that is geographically and

The Agri Innal Resource armstions Statem will provide the copenhaty to exclude alternative levels and inixes or food, fiber, and export crops and associated levels of enaltyment, income, and foreign exchange. The land resource base assessment will require a partial basis for assessing the comparative advantage of the vertex resources in the production of agricultural commodicies. The information or land twe programs and policies to evaluate the comparative advantage in the use of that twe programs and policies to evaluate the comparative advantage in the use of that agricultural resource hase.

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cartographically identified to facilitate information management is called the resource planning unit (RPU).

The concepts and definitions of PPAs and RPUs reflect the relationships among soils, climate, and plant growth. Soil resources are stratified according to the U.S. Department of Agriculture's <u>Soil Taxonomy</u>. Agroclimatic characteristics are classified according to the U.S. Department of Agriculture's "Crop Climate Taxonomy." The basic precepts of each taxonomy are discussed as a prelude to discussing the derivation of the production potential areas and resource planning units.

Agricultural production requires the presence of naturally-occurring factors such as soil, temperature, water, light, and many others in the general proportions needed by plants. These many interrelated factors are frequently grouped into two components -- soil and climate -- to simplify the problem of estimating the impacts of the environment on the adaptability and vigor of economically important plants.

The interrelated nature of soil and climate in the physiographic and biologic environment is recognized in <u>Soil Taxonomy</u>. Higher categories of the system use differentiating characteristics such as broad moisture and temperature regimes as well as the presence or absence of diagnostic horizons and soil properties. Within these broad categories, other factors such as parent materials and relief give rise to differences among individual soils. It is these differentiating factors which give rise to unique characteristics of the various classes of soils in the lower categories of the soil classification system and, in turn, affect the adaptability and vigor of plants. Variations in climate caused by such factors as altitude, prevailing winds, and seasonality are reflected in the distribution of specific plant species within broad vegetative patterns. The discrimination of plants for an optimum growing environment defined in terms of soils and climate make feasible the delineation of resource units suitable for agricultural planning.

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Soil Taxonomy

Soil Taxonomy 1/2 is a soil classification system developed by scientists from the U.S. Department of Agriculture, from land grant universities in the United States and from many foreign countries.

The system, based on 50 years of soil research and published in 1975, is new in design and nomenclature above the categorical level of the soil series. Nomenclature in prior systems was characterized by ambiguous common names, diverse linguistic origins, and few systematic properties. Nomenclature in <u>Soil Taxonomy</u> uses mainly classic Greek and Latin roots that are connotative as far as possible and fit most European languages without translation. Moreover, the roots are combined in a systematic manner so that the name of each taxon clearly indicates the place of the taxon in the system and connotes some of its important properties. Soil scientists using <u>Soil Taxonomy</u> can now make certain statements about soil properties from direct reference to the soil name.

The classification system is based upon natural relationships and is designed to emphasize relationships which enhance predictions that pedologists can make about the behavior of a particular taxon under stated conditions for stated purposes. The definitions of the diagnostic criteria are intended to be factual and leave little or no option for subjective application. Each category is an aggregate of taxa, defined at the same level of abstraction. The categories are order, suborder, great group, subgroup, family, and series, expressed in order of decreasing rank. The highest category, order, has the smallest number of classes and the greatest degree of generalization and heterogeneity progressing to the lowest category, the series, which divides soils into a large number of classes that are quite homogeneous and based on criteria similar to those used for classes in other categories; however,

⁻ Soil Taxonomy, A Basic System for Soil Classification for Making and Interpreting Soil Surveys. Soil Conservation Service, USDA. Ag. Handbook No. 436, December, 1975.

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the range in one or more properties is much narrower than that permitted in higher categories.

Properties:

Conceptually, the system, at the order level, groups soils into ten classes on the basis of the presence or absence of diagnostic layers (horizons) and unique chemical, physical, or mineralogical properties. Within these orders, only the nature and properties of the specific soils in those orders need to be considered in applying differentiating characteristics to divide orders into suborders, great groups, etc. Hence, differentiating characteristics are not applied uniformly throughout the system but are selected, as appropriate, to produce the desired taxa to categorize the diverse and complex population into successively more homogeneous taxa. Generally, suborder differentiation tends to emphasize moisture and temperature regimes. Great group differentiations are based on kinds and arrangements of diagnostic horizons and different genesis. Subgroups are based on properties common to other categories or are not used for any taxon at a higher level in the system.

Families are the lowest class of the systematic portion of <u>Soil Taxonomy</u>. Soil families are differentiated by a number of soil properties. The most common are particle size distribution in the horizons of major biologic activity below plow depth, mineralogy of the same horizon, and soil temperature regime. Other properties such as soil depth, content of carbonates, cementation, and the like are also employed if important. In countries where soil series are not uniformly used, phases of soil families may be used as soil mapping units and represent the most completely defined classes in the taxonomy.

Nomenclature:

Name roots used in <u>Soil Taxonomy</u> are mainly from Greek and Latin words with connotative meaning.

Concernmently, the system, of the groups soil into 1 the basis of the presence of presence of degenoric levers more protects, physical, or mineral legical presences. Within most orders, in nature and properties of the specific units in those orders need to be margined applying therent using disast.

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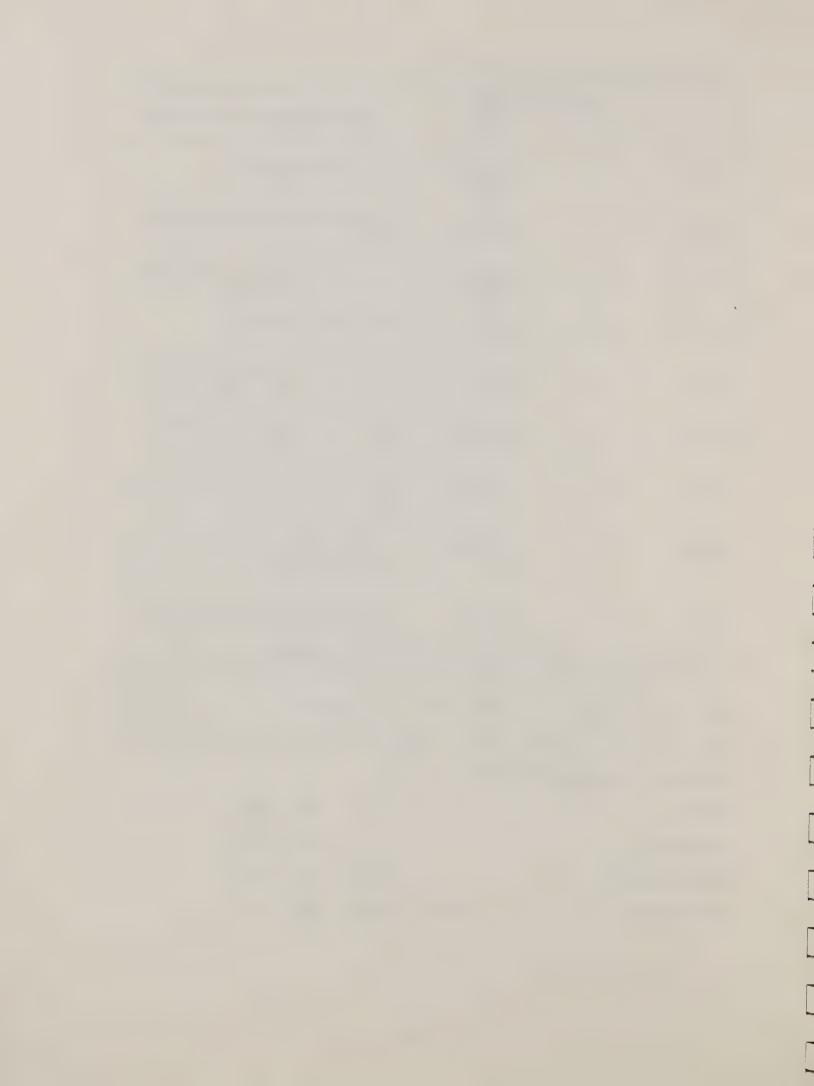
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Table 1. -- Derivation of soil order names.

| | Formative Element | | | | | |
|------------|-------------------|-----------------------------|---|--|--|--|
| NAME | Element | Meaning | Major Characteristics of Order | | | |
| Entisol | ent | meaningless symbol | Recently formed soils. | | | |
| Vertisols | vert | L. <u>verto</u> , turn | Shrinking and swelling clay (30%) soils. | | | |
| Inceptisol | cept | L. inceptum, beginning | Young soils with few or faint diag- nostic features or layers. | | | |
| Aridisol | arid | L. <u>aridus</u> , dry | Soils of arid regions. | | | |
| Mollisol | oll | L. mollis, soft | Soils of steppes and plains with thick dark surfaces high in humus. | | | |
| Spodosol | od | Gr. spodos, wood ash | Soils with subsoil accumulations of sesquioxide and humus. | | | |
| Alfisol | alf | meaningless symbol | High base status soils; subsurface layer of accumulation of translocated clays. | | | |
| Ultisol | ult | L. <u>ultimus</u> , last | Low base status forest soils; subsurface layer of accumulation of translocated clays. | | | |
| Oxisol | ox | Fr. oxide, oxide | Sesquioxide-rich, highly weathered soils of the intertropical regions. | | | |

The formative elements in the soil name are carried through to the subgroup level so that the name will connote certain soil properties and indicate each higher taxon to which it belongs, the soil subgroup Typic Humitropept is used to demonstrate the system as follows:

| ORDER | | INC | EPT | ISOL |
|-------------|-------|------|------|------|
| SUBORDER | | | TROP | EPT |
| GREAT GROUP | | HUMI | TROP | EPT |
| SUBGROUP | TYPIC | HUMI | TROP | EPT |



Family names are formed by adding specific descriptive elements as modifiers to the subgroup name. An example of a family name would be:

Typic Humitropept, fine, mixed, isothermic.

Crop Climate Taxonomy

Patterns of natural vegetation, have been created by the same temperature and moisture regimes and are associated with the broad patterns of soils used in <u>Soil Taxonomy</u>. These patterns can be differentiated into more detailed taxa on the basis of factors known to be important to specific plants within the broad vegetative patterns. Such taxa narrow the range of plant adaptability necessary for interpretations relative to adaptability and productivity of plants of economic importance.

The "Crop Climate Taxonomy" is a system that draws upon the vast body of work in climatic/vegetative classification systems and is generalized to accommodate inputs from available sources useful for classification. The system is designed to capture the major factors which influence plant life -- temperature, moisture, and light. The specific parametric indicators of these factors are selected and defined in terms of those most commonly available from standard weather records. Hence, the taxa can be defined in terms of readily available data and calibrated to field observations of existing vegetation. By establishing and measuring the ecological tolerance of a great many plants the system can also be used to specify crop climate delineations through consideration of the existing vegetation in areas which have no weather stations.

Three levels of classification are conceptualized in the taxonomy -- primary, secondary, and tertiary. Primary level taxa are based upon day length, annual precipitation, and seasonality of precipitation. Latitude is used as an indicator of day length and the general temperature regime with provisions for altitudinal variation and its effect on temperature. Primary categories are divided into

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secondary categories using monthly precipitation during the wet season, average monthly temperature during the wet season expressed in 2°C gradients, and the occurrence of frost. Tertiary levels have not yet been developed. Anticipated criteria for this level include temperature extremes, continentality, and climate equability.

Primary Crop Climate Zones:

Primary crop climate zones are classified in terms of day length, annual precipitation, and seasonality of precipitation. The system theoretically encompasses 108 primary taxa; however, in actuality some may not actually exist (4000 mm of moisture in polar climates, for example) and others have no explicit relevance to commercial agriculture. It is estimated that approximately 50 or 60 will be found as important for rainfed agriculture.

Latitude, as a measure of day length and as an approximation of temperature is used to stratify the earth into four zones -- tropic, subtropic, temperate, and polar. The specific criteria for these zones are shown (Table 2).

Table 2. — Latitude and temperature criteria for crop climate zones.

| Zone | Latitude | Average Annual Temperature at Sea Level C |
|-----------|--------------------|---|
| Tropic | 0-240 | > 24 |
| Subtropic | 24-34 ⁰ | 18-24 |
| Temperate | 34-58 ⁰ | 6-18 |
| Polar | > 58° | < 6 |

Annual precipitation categories were chosen on the basis of critical levels of precipitation for rainfed agriculture. The nine categories of annual precipitation, starting with one of greater than 4000 mm and ending with a class of less than 300 mm are not of equal width. Category widths at the lower annual precipitation levels are narrower to reflect conditions where minimal absolute changes in

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Prinar Cros Climate Lones:

Primary one climate somes are classific terms of the min and seasonair if precipitation, and seasonair if precipitation, and seasonair if precipitation, and seasonair if precipitation, and seasonair that some appears 128 primary text towever, in actuality some at mosture in solar cumates, for example 127 to 1

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Table 2. -- Latitude and temperature decema lot erop princing soners.

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Ann al precipitation categories were chosen on the basis oritical levels of energiples of energy and explications. The numerical responses of energy medicitations are not expert benefit of the collection with a clarge of jess than 200 mm end collection.

precipitation would be expected to drastically alter plant adaptability and productivity.

The four categories of temperature - latitude (Table 2) are combined with the nine categories of annual precipitation to form the 36 root names for the crop-climate zones (Table 3).

Table 3. -- Annual precipitation ranges and root names for primary crop-climate zones.

| Annual | Latitude Temperature Zones | | | |
|-------------------------|----------------------------|-----------|-----------|----------|
| Precipitation Ranges | Tropic | Subtropic | Temperate | Polar |
| mm | | Roo | t Names | |
| | | | | |
| > 4000 | Mad | Hydr | Dev | Siccstir |
| 2500-4000 | Pluv | Brum | Not | Pager |
| 2000-2500 | Balne | Fluv | Niv | Malk |
| 1500-2000 | Plad | Ferac | Hiem | Sbest |
| 1000-1500 | Vir | Ror | Hibern | Psychr |
| 750-1000 | Cal | Gel | Velp | Astag |
| 500 - 750 | Psak | Chondr | Gran | Briz |
| 300 - 500 | Siccane | Aestiv | Dan | Alg |
| < 300 | Hid | Pulver | Auchm | Abysstir |
| | | | | |

The average annual precipitation values, selected to form the ranges which define crop climate taxa, were determined by referencing known critical moisture limits (both minimum and maximum) of important crops in the tropic and subtropic zones of the developing world. Below are listed some of the relevant rainfed requirements of important crops for each value selected.

300 mm

This is considered to be the dividing line between areas suited only to very drought-tolerant forage plants such as saltbush or mesquite and areas able to sustain some level of cultivated crops. Areas which receive more than 300 mm/yr precipitation are usually able to support some small grains (barley or pearl millet, e.g.), sorghum, or drought-tolerant forage legumes such as Bellamon lucerne.

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Table 3, - Annual precipitation ranges and root paries for primary crop-eliment zones.

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| 7829757 | ved | | |
| | 1011 | | |
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| 12638 | mefil | | 1500-2000 |
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The Liverage annual precipit on values, sets ted to form the ranges which define drop diffracts taxa, were determined by referencing known critical moisture limits (both minimum and max num) of important crops in the tropic and lubtropact.

Check minimum and max num) of important crops in the relevant rotoffs.

sch value selected.

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500 mm

This is considered the effective lower limit for rainfed cotton as well as for certain pasture and fodder species such as Rhodes grass and weeping lovegrass. It is taken to be the upper limit for the most drought-tolerant forage legumes such as Bellamon lucerne.

750 mm

This is considered the upper limit for other drought-tolerant pasture and fodder species such as Columbus grass. Above this value climates may be compatible with cassava and Townsville lucerne. Rice requires approximately this minimum amount during the growing season, so unimodal climates this wet or wetter may support it.

1000 mm

This value is usually considered the lower limit for the optimal cultivation of many pasture and fodder species, such as: Molasses grass, pangola grass, guinea grass, dallis grass, and Napier grass. It is also considered the lower limit for rainfed pineapple, sisal, and citrus, and the optimal range for cassava. Maize usually does well with about this much rainfall during its growing season, so unimodal climates this wet or wetter may support it.

1500 mm

This is taken to be near the upper limit for optimal performance of soybean, cotton, pineapple, and such legume fodder/forage crops as kudzu. It is considered the lower limit for some other crops such as banana, coconut, coffee, and possibly cacao.

2000 mm

This is considered the lower limit for oil palm, and for the optimal performance of rainfed banana. It may be the upper limit of optimal performance for coffee.

2500 mm

This is considered the lower limit for tea, rubber, and black pepper, and the upper limit for cacao, mango, and some important leguminous fodder crops such as Townsville lucerne.

4000 mm

This is taken to be the upper limit for rubber and rice. At this level of rainfall few crops, with the possible exception of black pepper, are well documented.

The values defining the Crop Climate taxa by latitude and temperature were selected with latitude as a proxy for daylength, and with temperature varying both with latitude and altitude. Latitude serves as a rough indication of climatic

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1500 mm

This is taken to be near the upper him for optimal performance of sown detrion, pineapple, and such legume indder/forego crops as louded it is considered the lower limit for some other crops such as banana, coconut, coffee, and possibly cacao.

2000 mil

This 's considered the lower limit for oil parm, and for the optimal performance of rainfed banana. It may be the upper unit of optimal performance for coffee.

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lower limit for tea, rubber, and black peoper, and the mange and some important leguminous forder crops

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equability, length of growing season, occurrence of frost, and even precipitation, to varying degrees of reliability. It is known that plants have daylength and temperature, as well as rainfall requirements, but most often their reported temperature requirements are phrased in units other than mean annual or monthly temperature. For the purposes of the "Crop Climate Taxonomy," taxa are delimited in accordance with certain past climatological practice and modified by judgemental considerations about known cropping patterns and isotherm maps. Temperature values expected of latitudinal zones are defined and provisions are made for altitudinal variation to be reflected in the nomenclature. Certain values of average annual temperature may be taken to imply the occurrence of yearly frosts. Such frosts are thought to have determinant importance for vegetation.

The basic 36 root names are expanded to 108 by adding suffixes "id", "(i)ous", and "(i)al" to the root names to indicate the number of wet seasons. The criteria for these suffixes are shown (Table 4).

Table 4. -- Number of wet seasons and corresponding suffix designations for primary crop climate zones.

| Number of Wet Seasons | Criteria | Suffix Designator |
|--------------------------|--|----------------------|
| 0 | No clearly defined groupings of months with average monthly precipitation significantly greater than monthly average annual precipitation. | id |
| 1 | A single group of two or more months with average monthly precipitation significantly greater than monthly average annual precipitation. | (i)ous |
| 2 | Two groups of two or more months with average monthly precipitation significantly greater than monthly average annual precipitation. | (i)al |

varying degrees of reliability. It is known that plants have daylongth is speciature, as well as ramifall remirements, but most often then reports termes eturn expense to the requirements of the most of the mosthy take a speciative. For the purposes of the "Crop Climate Taxonomy," take are delimited in accordance with certain mast clima ological practice and modified by

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The basic 36 root names are expanded to 10% is adding suffixer "id", "() our

for theme suil ses are shown (Table a).

Table 4. - Yumber of wet seasons and corresponding suffix designations for primary crop elimate annes.

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| \$0000) - 150 | A single eroup of two or months with everage monthly cantil greates than from from the interest annual precipitation. | |
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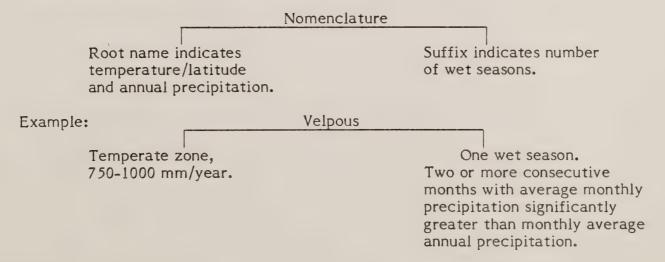
As an example, the name root for a crop climate zone in the Temperate latitude-climate category with 750-1000 mm of annual precipitation is <u>Velp</u>. The three possible primaries are then:

- (1) Velpid
- (2) Velpous
- (3) Velpial

A <u>Velpid</u> crop climate zone is one that is located between the 34th and 58th latitude, with a mean annual temperature in the 6-18°C range mean annual rainfall of 750-1000 mm, and with no apparent seasonality of precipitation (no clearly defined groupings of months with average monthly precipitation <u>significantly</u> greater than the monthly average annual precipitation). <u>Velpous</u> would be in the same latitude and mean annual temperature and precipitation ranges, but would have <u>one</u> pronounced precipitation period with average monthly precipitation greater than monthly average annual precipitation. In a similar manner, <u>Velpial</u> would demonstrate similar location precipitation, and temperature ranges, but have two pronounced precipitation periods.

A schematic of the primary crop climate name is shown below (Figure 1).

Figure 1. -- Primary crop climate taxonomy.



Secondary Crop Climate Zones:

Primary crop climate zones are divided into secondary crop climate zones on the basis of the occurrence of frost, the average monthly temperature during the wet season(s), and precipitation characteristics during the wet season(s).

Nomenclature for secondary crop climate zone consists of three words: the first two words reflect the criteria used to identify the secondary taxa; the third word identifies the primary taxa (the formation of which was discussed in the prior section).

The first word in the secondary crop climate nomenclature indicates the presence or absence of frost:

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occurrence of frost -- "cryic" absence of frost -- "thermic"
```

The second word in the secondary crop climate nomenclature indicates the mean monthly temperature during the wet season(s) and the quantity of rainfall in the wet season(s).

The mean monthly temperature during the wet season(s) is expressed in 2°C gradients and the corresponding name for each of these increments forms the prefix of the second word (Table 5).

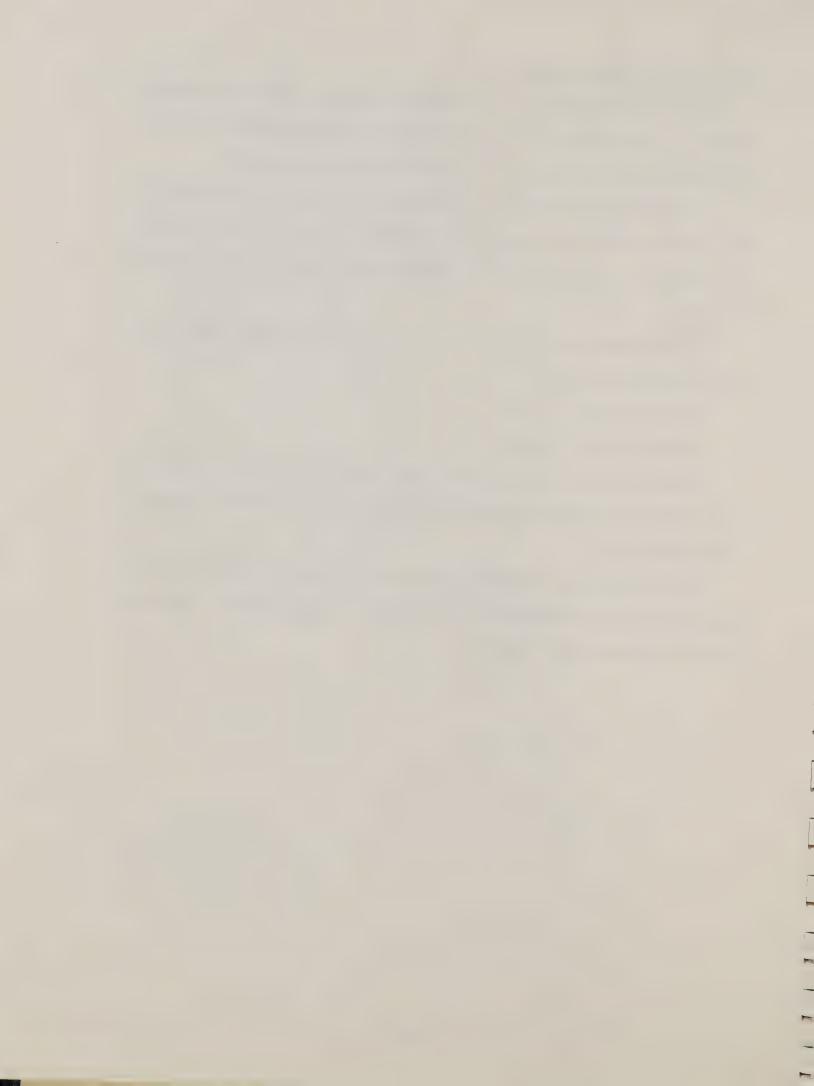


Table 5. — Mean monthly temperature gradients and prefix indicators for secondary crop climate zone name.

| Mean Monthly Temperature | Prefix Indicator |
|-----------------------------|---------------------|
| < 0 | Nul |
| 0 - 2 | Bi |
| 2 - 4 | Qua |
| 4 - 6 | Hex |
| 6 - 8 | Oct |
| 8 - 10 | Dec |
| 10 - 12 | Nai |
| 12 - 14 | Arb |
| 14 - 16 | Sit |
| 16 - 18 | Teman |
| 18 - 20 | Ash |
| 20 - 22 | Di |
| 22 - 24 | Cator |
| 24 - 26 | Seis |
| 26 - 28 | Huit |
| 28 - 30 | Dix |
| > 30 | Cent |

Precipitation levels during the wet season determine the suffix portion of the second word of the secondary designator. As previously discussed, one of the three primary class classifiers was the number of wet seasons --- no pronounced wet season, one wet season, and two wet seasons. The suffix name is keyed to mean annual rainfall level, the number of wet seasons, and level(s) of precipitation in the wet season(s) (Table 6).

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Precipitaren sevoja during the west season determine the cultur portion of the second word of the secondary designator. The previously discussed, one of the three primary class assisters was the number of vet seasons --- no pronounced west season, one west season, and two wet seasons. The uffix name is keyed to mean anotal teaching the number of it seasons, and level(s) of precipitation in the

Table 6. -- Average Monthly Precipitation Levels in the Wet Season(s) by Average Annual Precipitation (AAP) and Suffix Names

| | 6 | eukrene | pa | parakaster | teli | telmatos | apot | apobammkin | q | brechina | aı | ardeutos |
|-------------|------------------|--|------------------|--------------------------|---------------------|-------------------------------------|------------------|--|------------------|-----------------------------------|------------------|--------------------------|
| AAP (mm) | # Wet Seasons | # Wet Intensity Seasons (Amount/mm) | # Wet Seasons | Intensity (Amount/mm) | # Wet Seasons (/ | # Wet Intensity Seasons (Amount/mm) | # Wet Seasons | # Wet Intensity Seasons (Amount/mm) | # Wet Seasons | Intensity (Amount/mm) | # Wet Seasons | Intensity (Amount/mm) |
| 0007 < | 0 | Null (> 330) | - | Mild (2400) | 1 | Hyper (>400) | 7 | Both mild (< 400) | 2 | 1 mild (< 400) 1 hyper (>400) | 2 | Both hyper (> 400) |
| 2500 - 4000 | 0 | Null (210-330) | _ | Mild (<350) | 1 | Hyper (> 350) | 2 | Both mild (<350) | 2 | 1 mild (<350) 1 hyper (>350) | 2 | Both hyper (2 350) |
| 2000 - 2500 | 0 | Null (170-210) | - | Mild (<300) | - | Hyper (> 300) | 2 | Both mild (<300) | 2 | 1 mild (<300) 1 hyper (> 300) | 2 | Both hyper (> 300) |
| 1500 - 2000 | 0 | Null (130-170) | 1 | Mild (<250) | 1 | Hyper (> 250) | 2 | Both mild (<250) | 2 | 1 mild (<250) 1 hyper (< 250) | 2 | Both hyper (>250) |
| 1000 - 1500 | 0 | (90-130) | - | Mild (<180) | 1 | Hyper (> 180) | 2 | Both mild (<180) | 2 | 1 mild (<180) 1 hyper (> 180) | 2 | Both hyper (> 180) |
| 750 - 1000 | 0 | Null (62-90) | - | Mild (<125) | 1 | Hyper (> 125) | 2 | Both mild (<125) | 2 | 1 mild (<125) 1 hyper (> 125) | 2 | Both hyper (>125) |
| 500 - 750 | 0 | Null (42-62) | - | Mild (96>) | 1 | Hyper (< 90) | 2 | Both mild (< 90) | 2 | 1 mild (<90) 1 hyper (> 90) | 2 | Both hyper (> 90) |
| 300 - 500 | 0 | Null (25-42) | - | Mild (560) | 1 | Hyper (> 60) | 2 | Both mild (<60) | 2 | 1 mild (<60) 1 hyper (> 60) | 2 | Both hyper (> 60) |
| < 300 | 0 | NuII (<25) | П | Mild (< 38) | 1 | Hyper (> 38) | 2 | Both mild (< 38) | 2 | 1 mild (< 38) 1 hyper (> 38) | 2 | Both hyper (> 38) |
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Considering the prior examples of the primary class names, there were three possibilities: Velpid, Velpous, and Velpial. The prefix indicates a zone of 750 mm to 1000 mm range in annual precipitation and a 6°C to 18°C mean annual temperature range. The suffixes, "id," "(i)ous," and "ial" indicate no wet season, one wet season, and two wet seasons, respectively. Based on these three primary class names, if it is assumed that frost could occur and the mean monthly temperature is 11°C, the following secondary crop climate names are possible:

| | Frost | Average Monthly Wet Season Temperature | Average Monthly Wet Season Precipitation | Primary Name |
|----------------|-------|--|--|-----------------|
| No wet season | cryic | nai | eukrene | Velpid |
| One wet season | cryic | nai | parakaster | Velpous |
| | cryic | nai | telematos | Velpous |
| Two wet season | cryic | nai | apobammkin | Velpial |
| | cryic | nai | brechina | Velpial |
| | cryic | nai | ardeutos | Velpial |

If frost did not occur, there would exist the same set of possibilities with the first word of the secondary designator of the secondary crop climate names being "thermic". In the 6 to 18°C mean annual temperature range, the prefix for the second word could also be "oct", "dec", "arb", "sit", or "teman" based on the calculated mean monthly temperatures during the wet season(s).

Naming of the secondary crop climate zones is shown below (Figure 2).

Considering the prio examples of the primary close thems, the were to possibilities: Velphi, Velphis, and Veloci). The new dicas some if 7% to 1000 mm rouge of mount proc. (tation and a 6°C is of moon interaction and the sultimes, "id." is send indicate in the season, and two vet seasons, respectively. Said on these through one were season, and two vet seasons, respectively. Said on these through an class area, it is is sentined that in the seasons are seasons and two vet seasons. The relievant of the seasons are seasons and two vet seasons are seasons and two vet seasons are seasons and two vet seasons. The relievant of the seasons are seasons and two vet seasons are seasons and the seasons are seasons and the seasons are seasons. The relievant of the seasons are seasons are seasons and the seasons are seasons are seasons and the seasons are seasons and the seasons are seasons are seasons. The relievant of the seasons are seasons are seasons and the seasons are seasons are seasons are seasons and the seasons are seasons are seasons are seasons are seasons are seasons and the seasons are seasons are seasons are seasons are seasons. The relievant of the seasons are seasons are

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It frost did in occur, bost word ever me and sor considirties with the direct word of the secondary designate St the content." If the 6 to 13 °C mean annual emperates range, the prefix for the second word could also be "oct", "der" "arb", "sit", "teman" based on the relousted mean monthly respectatives during the "

Naming of the secondary crop climate zones is shown below (Figure 1).

Figure 2. -- Secondary crop climate taxonomy.

Secondary Crop Climate Zone Name: Secondary Nomenclature Primary Nomenclature First name Second name Root name - Suffix indicates frost indicates or no frost. Average monthly Average monthly temperature of precipitation of wet season(s). wet season(s). Example: Secondary Nomenclature Primary Nomenclature Thermic Nai telmastos Velp ous (No frost)

Map unit notation for Costa Rica expresses associations or gradations of climate. (ϕ /Fluvi-) Balneous, for example, is to be read, "Balneous mixed with or grading to Fluvi-Balneous," the null sign (ϕ) indicating that no prefix relating to altitudinal cooling (such as Fluvi) is necessary for part of the map unit.

One hyper wet season with greater than 125 mm

per month precipitation.

The Resource Planning Unit and Production Potential Area Concepts

11°C wet season

temperature.

The concepts and definitions of Resource Planning Units (RPUs) and Production Potential Areas (PPAs) reflect the relationships among soils, climate, and plant growth. The natural landscape may be viewed as an intricate complex of similar and dissimilar climate, soils, and vegetation which occur in a consistent, regular, and/or repeating pattern. The delineation of the landscape into these natural physiographic and ecological map units furnishes the geographically-identifiable needs of the Agricultural Resource Information System as RPUs. RPUs are generally composed of a variety of similar and often contrasting soil bodies and microclimates which may occur in intricate and complex spatial

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Map unit notation for Costa Rica expresse originars or gradamons as climate. (MFluvi-) Balmous, for example, is to be read, "Balmous mixed with or grading to Fluvi-Balmeous," the null sign (d) indicating that no prefix relating to altitudinal cooling (such as Fluvi) is necessary for part or the map unit.

The Resource Planning Unit and Production Potential Area Concepts

The concepts and definitions of Resource Planning Units (RPUs) and Preduction Potential Areas (PPAs) reflect the relationships among scale, climate, and plant growth. The natural landscape may be viewed as an intricate complex of similar and the natural landscape into these consistency.

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patterns. Such complexities, however, are generally regular and repeating in nature and are uniquely different from the spatial patterns and complexities of other RPUs.

RPUs have discernible natural features and properties that distinguish them from other RPUs. The interpretation of RPUs for plant adaptability, productivity, and management requirements must take into account the soils and microclimates in greater detail. Hence, the individual, major soil bodies and associated microclimates composing an RPU become the analytical units, production potential areas, for production potential analysis.

RPUs and PPAs are specifically defined as follows:

Resource Planning Unit -- a geographically-delineated unit of land (not necessarily contiguous), that is relatively uniform with respect to land forms, kinds and patterns of soil bodies, climates, water resources, and potential vegetation.

Production Potential Area -- a PPA is an aggregate area of individual soil bodies and associated micro-climates within an RPU which is sufficiently homogeneous with respect to plant adaptability, potential management requirements, and productivity to be reliably depicted by unique estimates of those parameters for national and regional analysis and planning.

RPUs serve several purposes. They divide the landscape into natural, physiographic planning and implementation units. RPUs serve as reference points for field technicians. They can be described with respect to their climates, physical characteristics, and major soil components to provide planners with a device to screen development options. They provide the geographic reference for the Land Inventory Subsystem of the Agricultural Resource Information System to merge, cross-classify, and aggregate natural resource data from various sources with tabular data by administrative boundaries.

Although PPAs have not yet been identified for the RPUs in Costa Rica, they are taxonomically definable and could be mapped in more detailed studies; however, mapping them is unnecessary for national planning and policy analysis. Policy choices and priorities can be based upon estimates of the area, distribution,

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RPUs here discernible natural instures on propertie. I distingual from other RPUs. The interpretation of RPUs for plant adaptionary, properties and management requirements must take into account the

in greater detail. Hence, the individual, near to bodie:
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Production Potential Area -- a PPA is an argressic area on adjusting and associated micro-climates within it. PPU which is sufficiently homosceneous with respect to man adaptability, permitting reanagement requirements, and productivity to be reliably beginner by unique estimates of those parameters for national and regional analysis and planning.

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and patterns of PPAs within an RPU. Detailed investigation and mapping can be more efficiently programmed after national policies and priorities are established.

Identification of PPAs in the future would afford a basis for making interpretations of crop adaptability, productivity, and management requirements for the analyses of planning and management options. The distribution, size, and associations of the individual PPAs and their patterns with respect to other PPAs within an RPU would need to be known. Program implementation is affected by the nature of the individual resources and by the interrelationships, patterns, and size of the resource units. The kinds and intensities of feasible programs would be included in the description and interpretation of RPUs to aid planners in screening potential management options for PPAs.

Patterns of distribution of PPAs can be defined. The three PPA patterns used in the agricultural resource information systems of other countries, and ultimately would be useful in describing PPAs and the planning and management constraints they impose for Costa Rica, are defined as follows:

Intricately Patterned PPAs -- When two or more PPAs generally occur in patterns composed mostly of individual PPA bodies of less than five hectares, they will be described as intricately patterned. For national planning, such PPAs are considered as a single unit and represented by a single-valued input coefficient (productive factors) and an output (yield) coefficient.

<u>Finely Patterned</u> -- When two or more PPAs generally occur in patterns composed of individual PPA bodies usually larger than five hectares they will be described as <u>finely patterned</u>. For national planning, finely patterned PPAs are considered as individual units for most management options but carry size constraints for some program and project purposes.

Coarsely Patterned -- When individual PPA bodies occur within an RPU in coarse patterns that are predominantly larger than 100 hectares, they are described as coarsely patterned. Such PPAs are treated as separate units for national planning.

Consider the following example: An RPU consists of a mountain range intersected by small valleys. Two PPAs, representing the flood plains and terraces, within the RPU are described as coarsely patterned in the valleys. Two intricately

the mileston of PPAs in the future would afford a basis tor astar interese-

rations of crop adaptability, productivity, and management requirements analyses of planning and management aptions. The air bution, zo, and tions of the individual PPAs and their pations with respect to other PPAs with respect of the known to Provide interrelationships patients, and size of the resource inters. The kinds and interrelationships patients would be included in the description as description and description as description as description and description as description and description as description as description and description as description as

Patrerns of distribution of PPAs can be defined. The new PPA patrerns used in the agricultural resource information systems a other ounce os, and ultimately would be useful or describing PPAs and the planning of management constraints they impose for Costa Rica, are defined as follows:

internally Patterned PFAs When two or more PPAs generally occur in part the composed mostly by individual PA Jodges of ice an ilventure they will be described as an invariant represented for national planning such PPAs are considered as a single unit and represented by a suggestable input coefficient (productive factors) an ourput (well) coefficient.

Firely Patterned - When two or more PPAs generally occur 37 pages reins com oxed of individual PPA bodies usual. larger translive sey will be described 33 body patterned. For national timely patterned PPAs are considered as individual units of the options but carry size constraints for some program

dual PPA bodies roout thisbin on exercise train 120 Such PPAs are patterned PPAs, one with deep, fertile soils and the other with shallow, rocky, infertile soils, form the mountain portion of the RPU. Because the valley PPAs are coarsely patterned, different programs for the management and utilization of the two PPAs can be considered and both can be planned independent of the mountain PPAs. The two mountain PPAs, however, must be planned as a single unit because they are intricately patterned. Hence, expected crop output for planning purposes would be a single-valued estimate reflecting uniform management (and like inputs applications) of the two mountain PPAs.

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Soils

In order to work with the concepts of the RPUs and PPAs, a knowledge of the kind and distribution of soils is essential. This knowledge commonly is derived in several ways. It can most easily be acquired from published maps and reports dealing directly with the subject. These may range from very detailed studies in which soils are mapped and described with precision suitable for site management to those highly generalized for regional planning procedures. This knowledge can also be derived from published and unpublished data dealing with subjects related to soils and soil genesis, e.g., geology, vegetation, climate, etc., supplemented by exploratory field studies.

Published information about the kinds and distribution of soils in Costa Rica is found mainly in generalized studies dealing with large sections of the country. Additional published information is in more detailed studies of relatively inextensive areas, such as irrigation and drainage project areas. Other information is in unpublished notes, reports, and student theses.

Efforts of the CRIES project to assemble a soil map of Costa Rica were coordinated and joined with the efforts of the Natural Resource Division of the Office of Agricultural Sector Planning (OPSA). Collaboration of Samuel Perez (OPSA), Alfredo Alvarado (University of Costa Rica), and Ellis Knox (consultant to the CRIES project and formerly at the Turrialba Center) was valuable for assembly and evaluation of published material, introduction of unpublished information, and reclassification of the soils.

In the previously published works, several systems of classifying soils had been used. By using descriptive materials that were available, the soils were reclassified in terms of a common system, <u>Soil Taxonomy</u>. For those areas for which no pedological classification was available, classification was inferred from available

In order to purch with the concepts of the RPUs and SPAs, a beauthoid of the control of soils is essential. This knowledge commonly as decived a several ways. It can most easily be acquired from publishes mans and four dealing directly of the subject. These me rance from vieta which soils are mapped and describe with precision suitable for site managements to those the published for regional planning coccours. This knowleds can also be derived from published and unpublished data destine with subjects related to soils and soil genesis, e.g., geology, regetation, climate, etc. support or exploratory field studies.

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in the previously published works, several systems of classifying fells and hash

data on geology, climate, vegetation, topography, and geologic age. The inferred classification was based on more specific data. Data were sufficiently meager that the classifications derived can, in some instances, be considered tentative pending completion of additional and more comprehensive studies.

The soil map was compiled by OPSA on the nine topographic sheets at 1:200,000 scale of the Costa Rican National Geographic Institute. The map, dated March, 1978, has mapping units, mostly associations, based on soil subgroups even though it bears the title, "Asociaciones de Grandes Grupos de Suelos de Costa Rica." The map, as issued by OPSA, has a legend sheet which lists principal and associated subgroups and a few major soil characteristics. Tabular descriptions, prepared by the CRIES project, describe the proportions of the component subgroups, land form, parent material, underlying material, climatic factors and, for each component, slope, drainage, depth, texture, rock fragments, water holding capacity, permeability, flooding and ponding, reaction, base saturation, and limitations for agricultural use (Appendix A).

Crop Climate

Climatological data were used in various ways. Annual temperature was calculated by subtracting an altitudinal correction from latitudinal temperatures. The altitudinal correction was determined by the formula

Here, "altitude" means the average of a range of altitudes displayed on topographic maps for the PPA.

Monthly average temperature and precipitation were the keys to classifying meteorological stations according to the "Crop Climate Taxonomy." Number of wet seasons, average annual temperature, latitude, and total average annual precipitations were used to classify the weather stations at the Primary level of the "Crop Climate Taxonomy." The monthly average precipitation was evaluated

completion of additional and more comprehensive studies.

The soil men was compiled By OPSA on the religionship of 1700,000 scale of the Costa Rican National Geograph of Institute The Paper Morch, 1978 has mapping units, mostly associations, paper "and pray" of the choigh i ears the title, "Asociaciones de Grands Grupos of Surlos of Costa Rica." he made as issued a 198A, as a funchior of the cost more associated subgroups and if the major soil contractoristics. Isolutar descriptions of the computent prepared by the CRICS project, describe the proportions of the computent subgroups, land than, parent material, uncertwing material clactors and, for each component, slope, drainage, deput, terruit, not traymont, water holding to agricultural use Oppendix A).

Grop Climate

Climatological data were used in various weys. Amoust remperature was calculated by subtracting an attituding, correction from latitudinal remperatures. The attitudinal correction was determined by the formula

Here, "altitude" means the average of a range of altitudes displayed on impospissing

The temperature and precipitation were the fully discussiving the "Green Chimate Temperature". Number of our continues and temperature, lath and total contents and

to determine the intensity of any wet season. Generally a wet season was recognized as the period during which most of the annual precipitation falls. Generally, too, abrupt increases in the monthly average precipitation were easy to note and to use to define wet seasons. Classification of the stations at the secondary level is achieved with the aid of the simple formula:

$$Pm = \frac{P_1 + P_2 \cdots P_n}{n},$$

where Pm is the average monthly precipitation during the wet season, P_n is the average precipitation for the n-th month, and n the total number of months taken to be in the wet season. Temperature classification at the secondary level was completed for the 71 stations for which monthly temperature data were available by applying the formula:

$$Tw = \frac{T_1 + T_2 \cdots T_n}{n}$$

where Tw is the average monthly temperature during the wet season, T_n is the average temperature for then n-th month, and n the total number of months taken to be in the wet season. Using these values for a given weather station, classification for the secondary level can be completed by adding the temperature prefix to the modifier, and noting the presence or absence of frost (supplying "cryic" or "thermic" to the taxon name).

After all weather stations were classified, they were located at points corresponding to their locations and labelled on maps. Weather stations, once classified, are used to form the nuclei of the crop climate map units. Each map unit is delineated by drawing lines between nuclei made up of one to many stations. The positions of these lines on the map are fixed by a judgemental process. Input to this process includes field examination of terrain for changes in vegetation and cropping practices. Topography is also taken into account. Existing floristic material, especially floristic or Holdridge Life Zone maps, are also used in fixing

these lines. In the present state of the art, correlations between specific plants and specific crop climates can only be inferred; when additional empirical data are available, it should be possible to correlate specific plants with specific crop climate taxa.

At the Primary and Secondary levels of the Crop Climate Taxonomy, each map unit may depict associations of climates occurring in repeating patterns across areas or gradations to other climates. However, the boundaries of the map units do not guarantee that the climate specified for a map unit will never occur outside the map unit. Thus, an area may be said to lie in a map unit "Auchmous" which adjoins a map unit "Danious", but small areas of "Danious" climate may be found in the region designated "Auchmous" and vice versa.

RPUs and PPAs

As previously discussed, Resource Planning Units (RPUs) and Production Potential Areas (PPAs) are broad segments of landscape in which climate, soils, and vegetation occur in a consistent, regular and/or repeating pattern. The former are sufficiently extensive that they can be shown on maps of intermediate or small scale; the latter comprise segments of the mappable area, and although they are too small to be shown conveniently on maps suitable for national planning, they could be depicted cartographically on maps of larger scale.

At the present state of the art, the creation of RPUs and PPAs is largely a matter of judgement. Knowledge about the kinds of soils, climate, and natural vegetation and their distribution, as portrayed in the soil and crop-climate studies, are combined to create broad segments of the national or regional landscape that are relatively uniform with respect to the physical environment within which a specific kind or kinds of agricultural endeavor can be carried out with expected results.

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RPUs and PPAs

As previously discussed, Resource Planting Units (RPI a) and Freduction Potential Areas (PPAs) are broad segments of landscape in their rimers, soils, and vegetation occur in a consistent, regular and/or republing rattern. The format are sufficiently extensive that they can be shown or made of intermediate or small scale; the latter comprise segments of the mappable area, and authourn they are too small to be shown conveniently on maps suitable for national planning, they could be depicted safting as shown conveniently on maps suitable for national planning, they

At the present state of the art, the creation of RPLs and PPAs is largely a matter of judgement. Kno ledge about the kinds El rolls, climate, and natural matter of judgement. So portrared in the soil and crop-climate studies.

The actual process of creating RPUs involves superimposing transparent copies of the soil and crop climate maps over the topographic maps, which are used as reference maps. Areas uniform with respect to both climate and soil patterns can then be outlined. In some situations, PPAs could be identified on the basis of physical characteristics but the potential for agricultural use might not be significantly different; or a single overriding factor may dictate the potential, or lack of it, for economic use. In these examples, an RPU would be identified but they would not be divided into PPAs. As an illustration, the most simple RPU is one in which a single kind of soil on uniformly sloping topography occurs in a single climatic region, e.g., a hypothetical area of wet loamy soils (Typic Tropaquepts) on nearly level (slopes 0-2 percent) plains in a tropic climatic region having 2500 to 4000 mm annual precipitation which is uniformly distributed throughout the year; average annual temperature is higher than 24°C (the climate is Eukrene Pluvid).

In contrast, RPUs that consist of more than one kind of soil and/or topographic situation in combination with climatic regimes which differ over short distances or with changes in altitude, aspect, and/or latitude represent situations which commonly occur. If the complexly patterned physical environment in a region is sufficiently extensive, then PPAs may be more suitable for national planning. Commonly, the subdivision of a complex area into a series of less complex environments could provide detail considered more appropriate for project planning than for national planning.

PPAs are recognizable from the source materials used in developing the basic soil and crop-climate studies. They are significant components of an RPU but at the level of generalization required for the Land Resource Base Report, it is not feasible to show them cartographically.

The criteria for establishing PPAs are perhaps best described by example. Consider a geographic area consisting of steeply sloping limestone ridges with

28 in Coth chrosto many over the topographic value, which is are assisted reference maps. Areas uniform with respect in both curvate and oil pattern can then be nurtimed. In some situations, PPAs could be identified the nurtimed. In some situations, PPAs could be identified the patternation of a single overriding factor may distance the paternas), we define of it, for economic use. If these examples, an RPU woun he identified they would not be divided into PPAs. As an illustration, the most simple RPA cone in which a single kind of soil or uniformly stoping open one one or an interpretation of the consequences of the loang collection in stowers are region, e.g., a hypothetical area of the loang collection having 2502 to nearly level (slopes 9-2 percent) plains in a monic claratic region having 2502 to average annual precipitation which is uniformly astronused throughout the years average annual temperature is higher than 24°C (the climate is Fukrene Pluvid)

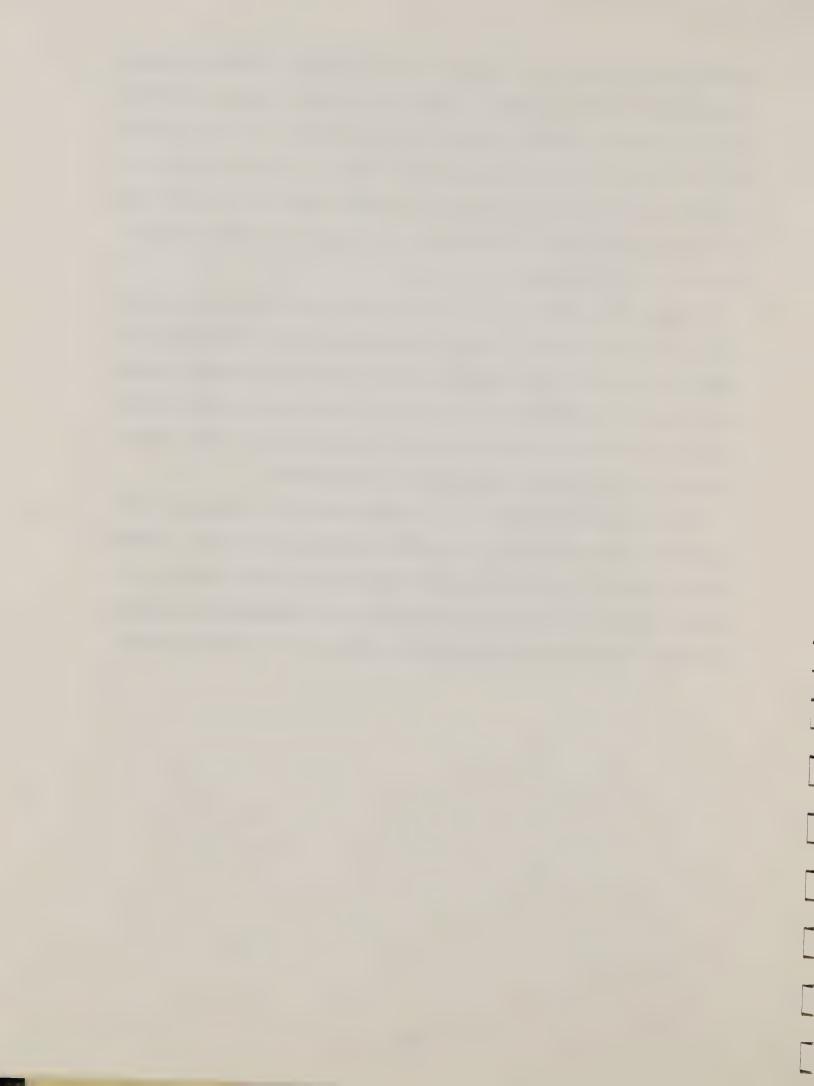
In contrast, RP s that consist of more than one Vin of sor and/or topographic situation in complication with climatic regimes which distances or with changes T altitude, aspect, and/or latitude represent situations which commonly occur. If the complexly patterned physical environment in a region T sufficiently extensive, then PPAs may be more suitable for national planning. Commonly, the subdivision of a complex area into a series of less complex environments could provide detail considered more supropriate for project planning than for national planning.

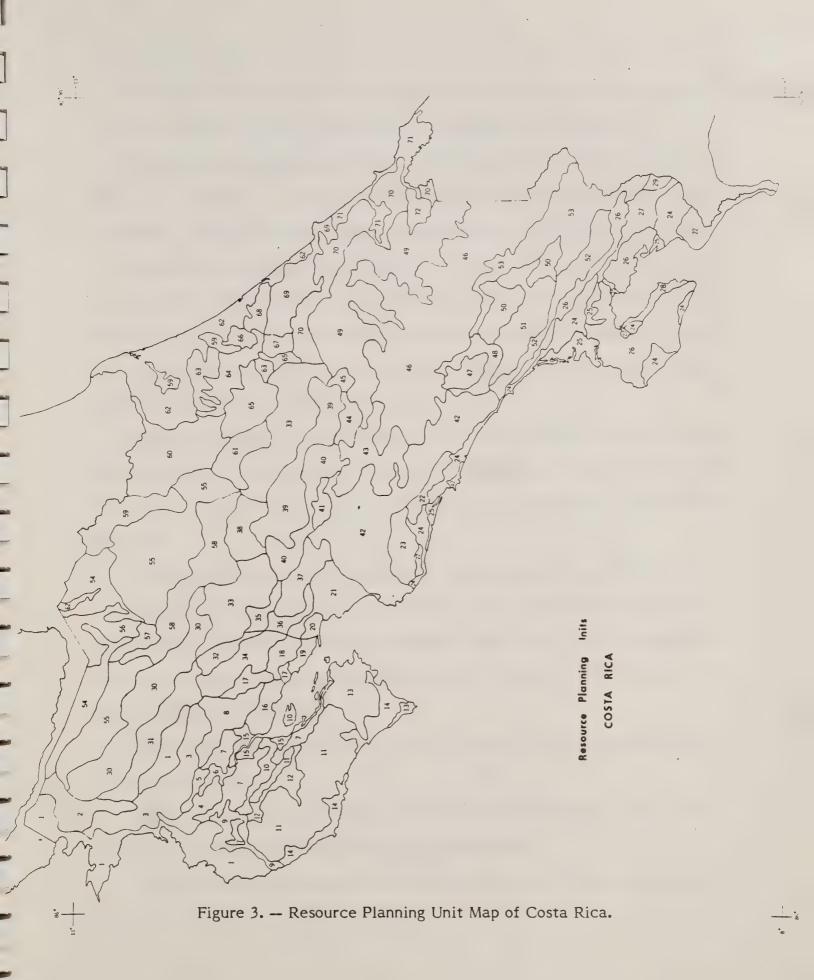
. PPAs are recognizable from the source materials used in developing the breist soil and crop-chimate studies. I are significant componentigned an RPU but 37 the level of generalization require or the Land Resource Bare Rapor it is not seatible to show them carrographs.

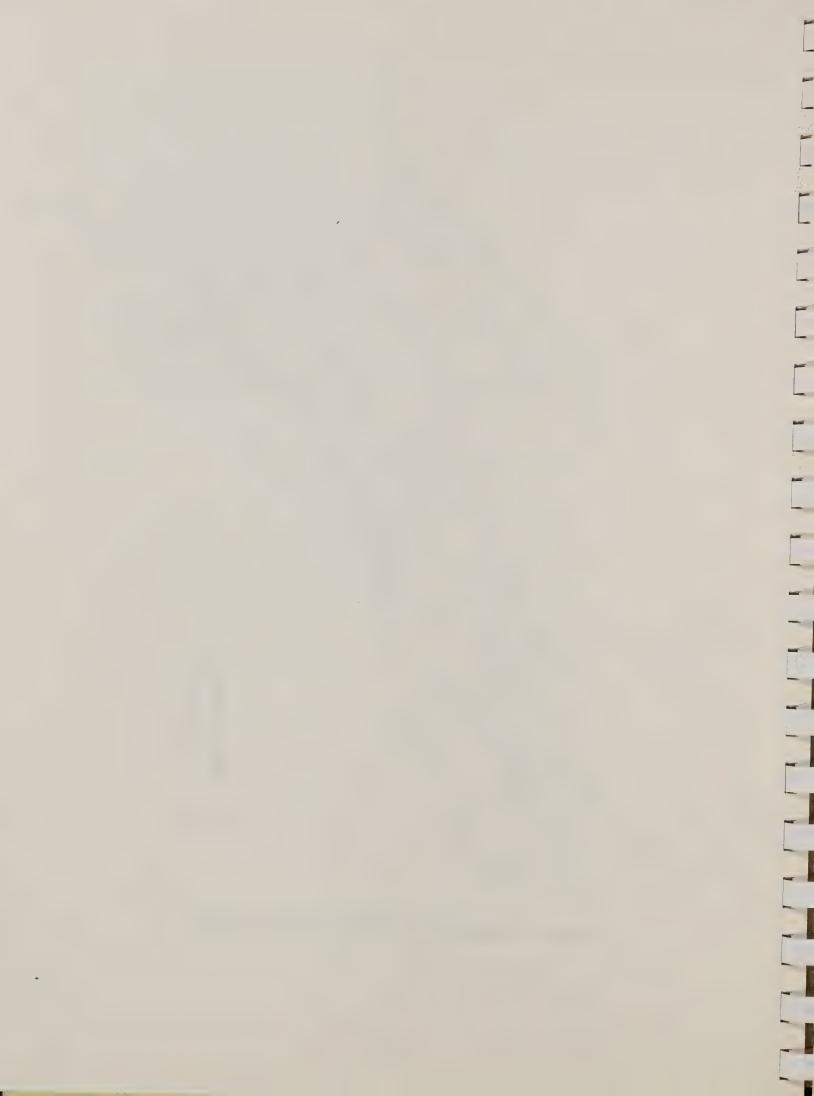
shallow stony soils separated by level or nearly level ground with deep non-stony soils; the two kinds of landscape are of nearly equal extent. For purposes of this illustration, climate is uniform throughout the area. Neither landscape is individually sufficiently extensive to be considered an RPU, so the two landscapes are considered together for planning purposes. The steep ridges comprise one PPA and the intervening level ground comprises the other PPA; each has unique potential, or lack of it, for agricultural use.

A corresponding illustration is one in which the soil component remains constant and climate differs. Consider a mountainous area with steep slopes and predominantly shallow soils extending to elevations of several thousand meters, temperatures vary significantly with changes in altitude. In this instance, potential for economic use differs at low, mid, and upper ranges of elevation. Each range of elevation can be identified as a PPA within the mountain RPU.

The proportion of an RPU that is represented by a PPA is estimated on the basis of the resource scientists' accumulated knowledge about the RPU. In some instances the figure can be based on field observations, in other cases by use of reference maps, and in yet other situations by use of judgement and previous experience. Rarely would precise measurement of the extent of PPAs be feasible.







RPU Summary Table

The table of RPUs contains the composition of each RPU in terms of kinds of soil and crop climate zones. Each column in the table is described below.

<u>Dominant soil map unit</u> provides the identification of the most extensive soil map unit in the RPU. It is an alpha-numeric symbol used on the March 1978 edition of the map, "Asociaciones de Grandes Grupos de Suelos de Costa Rica," 1:200,000.

<u>Dominant and subdominant soil</u> identifies the one to three principal soils in the soil association comprising the soil map unit; the most extensive soil is listed first. Where two or three soils are of approximately equal extent, the dominant soil is the first one listed by the authors of the soil map. This information is taken from the descriptive sheets for the soil map units.

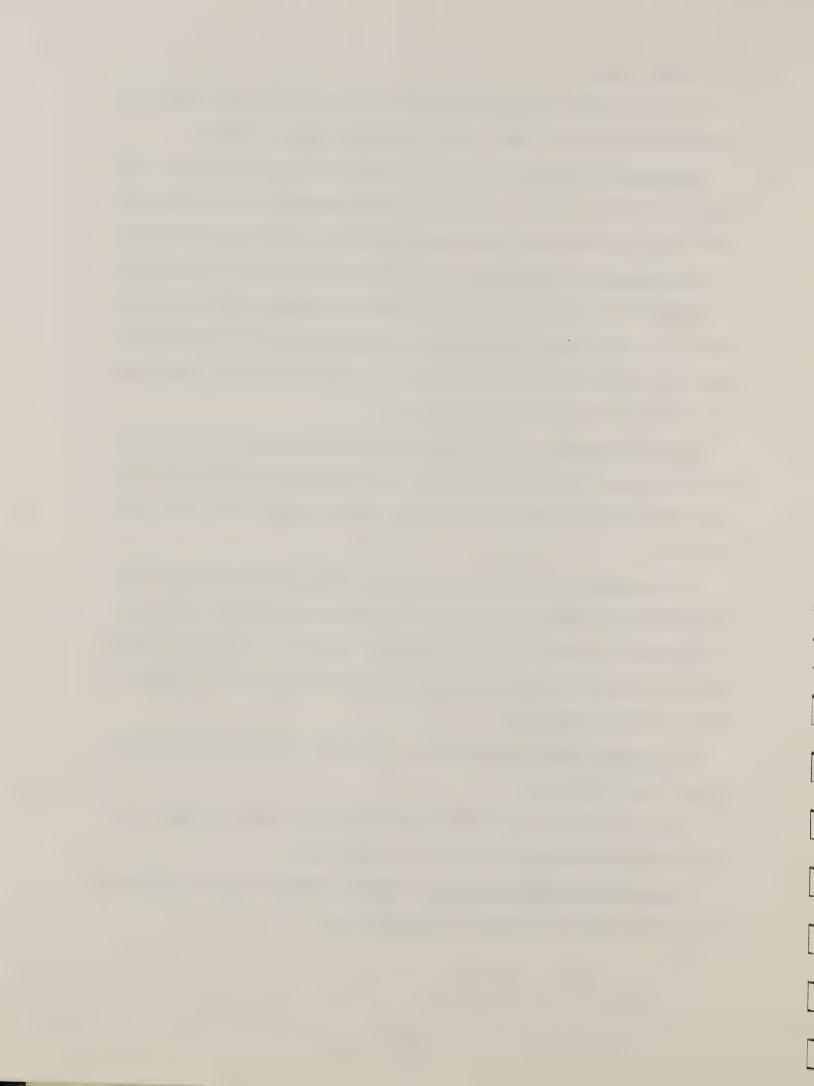
<u>Percent composition</u> is an estimate of the relative proportion of each soil in the soil map unit. These figures are taken from the descriptive sheets for the soil map units; estimates of relative proportions were not provided for a few of the map units.

Other <u>soil map units</u> identifies those soil map units, and the soils therein, that are distributed throughout the area of the RPU. They are significant inclusions but are estimated to make up less than 40 percent of the RPU. These are identified from the soil map by the physical scientists after the location of the boundary of the RPU has been determined.

<u>Crop climate zone</u> is the classification of climate at the primary level of the "Crop Climate Taxonomy."

Zone is one of four zones which stratify the earth according to length of day, as reflected by latitude, and a broad range of temperature.

Average annual precipitation is the numerical average of annual precipitation for the years of record, as taken from climatic record.



Average annual temperature is the arithmetic average of annual temperature for the years of record, as taken from climatic records.

Seasonality indicates the presence or absence of wet season(s) and the period of the year in which the wet season(s) can be expected to occur; this is interpreted from climatic records.

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of the year in which the wet seasonfs) can be expected in occur, the interest from officers and officers.

| Seasonality | One wet season, May through November | one wet season, May through November | one wet season, May through November | one wet season, June through October | one wet season, May through November |
|--|---|---|---|---|--|
| Average Annual Temp. Range (C) | above 24 | above 24 | above 24 | above 24 | above 24 |
| Average Annual Precip. | 1500- | 1500- | 1500-2000 | 2000- | 1500- |
| Zone | Tropic | Tropic | Tropic | Tropic | Tropic |
| Crop Climate Zone | Pladous | Pladous | Pladous | Pladous | Pladous |
| Other Soil Map Units | 122 Fluventic Ustic Dystropepts Typic Ustifluvents 121 Fluventic Ustropepts Fluventic Haplustolls E6 Typic Sulfaquents Tropic Fluvaquents 133 Ustic Dystropepts Ultic Haplustalfs | 123 Lithic Ustropopts Lithic Ustorthents Vertic Ustropopts 131 Oxic Dystropopts Aeric Tropaquepts | I21 Fluventic Ustropepts Fluventic Haplustolls I23 Lithic Ustropepts Lithic Usterthents Vertic Ustropepts | M1 Typic Argiustolls Vertic Ustropepts M2 Fluventic Haplustolls Typic Argiustolls Fluventic Ustropepts V1 Typic Pellusterts Udic Pellusterts I20 Fluventic Ustropepts Typic Ustipsamments Fluvaquentic Ustropepts | |
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| RFU No. (12/1/79) | Dominant Soil Map Unit (March 1978) | Dominant Soil Subdominant Soil | Percent compo- sition | Other Soil Map Units | Crop Climate Zone | 2one | Average Annual Precip. | Average Annual Temp. Range (OC) | Seasonality |
|-------------------------|--|--|-----------------------------|---|----------------------|--------|------------------------------|---------------------------------|--|
| • | 11 | Typic Tropaquepts Tropic Fluvaquents Udic Pellusterts | ~ | 123 Lithic Ustropepts Lithic Ustorthents Vertic Ustropepts | Pladous | Tropic | 1500- | above 24 | one wet season, May through November |
| | V1 | Typic Pellusterts Udic Pellusterts | 20 | 123 Lithic Ustropepts Lithic Ustorthents Vertic Ustropepts 132 Ustic Dystropepts 134 Andic Dystropepts | Pladous | Tropic | 1500- | above 24 | one wet season, May through November |
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| Seasonality | one vet season, | October | one wet season, May through November | one wet season, May through October | one wet season, May through November | one wet season, May through October | one wet season, May through November |
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| Average Annual Temp. Range (C) | above 24 | | above 24 | above 24 | above 24 | above ·24 | above 24 |
| Average Annual Precip. | 1500- | 0007 | 2500 | 2500 | 2500 | 2500 | 1500- |
| Zone | Tropic | | Tropic | Tropic | Tropic | Tropic | Tropic |
| Grop Climate Zone | Pladous | | Balneous | Balneous | Balneous | Balneous | Pladous |
| Other Soll Map Units | Vl Typic Pellusterts | | 133 Ustic Dystropepts Ultic Haplustalfs | 132 Ustic Dystropepts | 133 Ustic Dystropepts Ultic Haplustalfs 123 Lithic Ustropepts Lithic Ustorthents Vertic Ustropepts | 121 Fluventic Ustropepts Fluventic Haplustolls E6 Typic Sulfaquents Tropic Fluvaquents M3 Fluvaquentic Hapludolls Typic Tropaquepts Fluvaquentic Haplaquolls | |
| Percent compo- sition | 70 | 60 | 70 | 60 20. | 30 20 | 500 | 07 |
| Dominant Soil Subdominant Soil | Ustic Dystropepts | Ustic Dystropepts Ultic Haplustalfs | Ustic Dystropepts | Ustic Dystropepts Ultic Haplustalfs | Lithic Ustorthents Lithic Ustropepts Lithic Haplustalfs | Ustic Dystropepts Ultic Haplustalfs | Typic Sulfaquents Tropic Fluvaquents |
| Dominant Soil Map Unit (March 1978) | 132 | 133 | 132 | 133 | E 22 | 133 | E6 |
| RPU No. (12/1/79) | 10 | | = | 12 | 13 | 14 | 15 |

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| Seasonality | one wet season, May through November | one wet season, May through November | one wet season, May through November | one wet season, May through November ' | one wet season, May through November | one wet season, May through November |
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| Average Annual Temp. Range (OC) | above 24 | above 24 | above 24 | above 24 | 18 and above depending on altitude | 18 and above depending on altitude |
| Average Annual Precip. | 2000 | 2500- | 2000- | 2000- | 2000- | 2000- 4000 |
| Zone | Tropic | Tropic | Tropic | Tropic | Tropic to Subtropic | Tropic to Subtropic |
| Crop Climate Zone | Pladous | Balneous | Balneous | Balneous | Brumi-Pluvious/ (@-Fluvi) - Balneous | Brumi-Pluvious/ (\$\partial Fluvi) - Balneous |
| Other Soil Map Units | 119 Typic Ustropepts Typic Haplustalfs Vertic Ustropepts E6 Typic Sulfaquents Tropic Fluvaquents 121 Fluventic Ustropepts Fluventic Haplustolls | Al Typic Haplustalfs Typic Ustropepts Vertic Ustropepts | 121 Fluventic Ustropepts Fluventic Haplustolls 122 Fluventic Ustic Dystropepts Typic Ustifluvents | E6 Typic Sulfaquents Tropic Fluvaquents I23 Lithic Ustropepts Lithic Ustorthents Vertic Ustropepts | E6 Typic Sulfaquents Tropic Fluvaquents | M3 Fluvaquentic Hapludolls Typic Tropaquepts Fluvaquentic Haplaquolls E6 Typic Sulfaquents Typic Fluvaquents I24 Aquic Ustropepts |
| Percent compo- sition | 50 20 | 30 20 20 | 20 | 60 20 | 60 | |
| Dominant Soil Subdominant Soil | Lithic Ustropepts Lithic Ustrothents Vertic Ustropepts | Lithic Ustropepts Lithic Ustorthents Vertic Ustropepts | Ustic Dystropepts Ultic Haplustalfs | Fluventic Ustropepts Typic Ustifluvents | Fluventic Ustic Dystropepts Typic Ustifluvents | Ustic Dystropepts Ultic Haplustalfs |
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| Seasonality | one wet season, April or May through November | one wet season, May through November | one wet season, April or May through November | one wet season, May through November | one wet season, May through November | one wet season, May through November | one wet season, May through November | one wet season, May through November . |
|--|---|--|--|--|---|--|--|--|
| Average Annual Temp. Range (C) | above 24 | 18-24 | above 24 | above 24 | above .24 | above 24 | above 24 | above 24 |
| Average Annual Precip. | 2500- 4000 | 2000- | 2500- | 2500 - 4000 | more than | more than 4000 | 2500 - 4000 | more than 4000 |
| 2one | Tropic | Tropic to Subtropic | Tropic | Tropic | Tropic | Tropic | Tropic | Tropic |
| Crop Climate Zone | Pluvious | Brumi-Pluvious/ Fluvi-Balneous | Pluvious | Pluvious | Madious | Madious | Pluvious | Madlous |
| Other Soil Map Units | 114 Andic Humitropepts Entic Dystrandepts Andic Tropohumults 122 Fluventic Ustic Dystropepts Typic Ustifluvents | | E6 Typic Sulfaquents Tropic Fluvaquents | | 126 Typic Dystropepts Lithic Dystropepts Typic Troporthents | | | |
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| Average Annual Precip. | 2500- | 1500- | 2000- | more than 4000 | 2000– 2500 | 2000 - | 2000÷ 4000 | 2000- | more than 4000 |
| Zone | Tropic | Tropic | Tropic | Tropic | Tropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic |
| Crop Climate Zone | Pluvious | Pladous . | Balneous | Madid | Balneous | Brum1-Pluvious/ Fluvi-Balneous | Brumi-Pluvious/ Fluvi-Balneous | Brumi-Pluvious/ | Madious |
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| Dominant Soil Subdominant Soil | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Ustic Humitropepts Andic Ustic Humitropepts | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Ustic Humitropepts Andic Ustic Humitropepts | Lithic Ustorthents Lithic Ustropepts Vertic UStropepts | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts |
| Dominant Soil Map Unit (March 1978) | 91 | . 16 | 16 | 16 | E17 | 91 | 117 | E5 | 91 |
| RPU No. (12/1/79) | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |

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| Seasonality | one wet season May through November, grading to nonseasonal toward the east | one wet season May through November | one wet season May through October | one wet season May through November | one wet season May through November | | one wet season May through November | no wet season |
|--|--|--|--|--|--|---|--|---|
| Average Annual Temp. Range (C) | 18-24 | 18-24 | 18-24 | 18-24 | 6-18 | | 18–24 | 18-24 |
| Average Annual Precip. | 4000 | 1500- 2000 | 1500- | 2000 - | 1500- | | 1500-2500 | 4000 |
| Zone | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Temperate to Subtropic | | Tropic to Subtropic | Tropic to Subtropic |
| Crop Climate Zone | Brumi-Pluvious | Feraci-Pladous/ Fluvi-Balneous | Feraci-Pladous/ Fluvi-Balneous | Brumi-Pluvious/ Fluvi-Balneous | Noto-Pluvious/ Nivi-Balneous/ Hiemo-Pluvious | | Feraci-Pladous/ Fluvi-Balneous | Brumi-Pluvious/ Fluvi-Balneous |
| Other Soil Map Units | II7 Ustic Humitrôpepts Andic Ustic Humitropepts III Lithic Dystrandepts Typic Dystrandepts Lava outcrops | <pre>16 Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts</pre> | 126 Typic Dystropepts Lithic Dystropepts Typic Troporthents | Il4 Andic Humitropepts Entic Dystrandepts Andic Tropohumults | 4 | U4 Typic Tropohumults Typic Humitropepts | 115 Andle Ustic Humitropepts. Aeric Tropaquepts | Il6 Fluventic Humitropepts Aeric Tropaquepts Typic Humitropepts |
| Percent compo- sition | 40 20 20 20 | 60 30 50. | 40 20 20 | 40 20 20 | | 40 20 20 | 30 20 20 | 30 30 20 |
| Dominant Soil Subdominant Soil | Typic Dystrandepts Typic Vitrandepts Typic Hydrandepts | Typic Dystrandepts Typic Eutrandepts Typic Dystrandepts Aquic Dystrandepts | Typic Pellusterts Ustic Humitropepts Vertic Ustropepts | Typic Dystrochrepts Lithic Dystrochrepts Typic Troporthents | Lithic Dystropepts Typic Dystropepts | Typic Dystropepts Lithic Dystropepts Typic Troporthents | Typic Humitropepts Andic Humitropepts Oxic Dystropepts | Typic Humitropepts Andic Humitropepts Oxic Dystropepts |
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| Annual Temp. Range (C) Seasonality | one wet season May through November | 18 and one wet season above May through depending November on altitude | 18 and one wet season above May through depending November on altitude | 4 one wet season May through December | 18 and · one wet season above April through · depending November on altitude | 18 and one wet season above May through depending November on altitude | 18 and one wet season above April or May depending through on altitude November | 18 and one wet season above April through depending November on altitude |
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| | 6-18 | 18 and above depend on alt | 18 and above depend | 18–24 | 18 and above dependi on alti | 18 and above depend on alt | 18 and above depend on alt | 18 and above depend on alt: |
| Average Annual Precip. | 1500- c 4000 | 4000 | 2000- | 2000- | 2500- | 2500- | more than 4000 | 2500- more than 4000 |
| Zone | Temperate to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Tropic to Subtropic | Subtropic |
| Grop Climate Zone | Noto-Pluvious/ Nivi-Balmeous/ . Hiemo-Pladous | Brumi-Pluvious/ (0-Fluvi)-Bal- neous | Brumi-Pluvious/ (Ø-Fluvi)-Bal- neous | Brumi-Pluvious/ Fluvi-Balneous | Pluvious to Brumi-Pluvious | (Ø-Brumi)- Pluvious | Hydro-Madlous | Pluvious to Brumi-Pluvious and Madious |
| other Soil Map Units | <pre>14 Typic Placandepts</pre> | | U2 Ustoxic Palehumults Aeric Tropaquepts | | 122 Fluventic Ustic Dystropepts Typic Ustifluvents U3 Plinthic Palehumults | U2 Ustoxic Palehumults Aeric Tropaquepts I21 Fluventic Ustropepts Fluventic Haplustolis | U4 Typic Tropohumults Typic Humitropepts | Andic Humitropepts Andic Tropohumults Entic Dystropepts |
| Percent compo- sition | 40 20 20 | 70 20 60 20 | 07 | 07 | 70 20 | 07 | 07 | 114 |
| Dominant Soil Subdominant Soil | Andic Humitropepts Entic Dystrandepts Andic Tropohumults | Ustoxic Palehumults Aeric Tropaquepts Fluventic Ustic Dystropepts Typic Ustifluvents | Plinthic Palehumults Typic Humitropepts | Typic Tropohumults Typic Humitropepts | Ustoxic Palehumults Aeric Tropaquepts | Plinthic Palehumults Typic Humitropepts | Lithic Dystropepts Typic Dystropepts | Andic Humitropepts |
| Dominant Soil Map Unit (March 1978) | 114 | U2 122 | u3 | U4 | u2 | U3 | 130 | 113 |
| RPU No. (12/11/79) | 76 | 47 | 48 | 64 | 50 | 51 | 52 | 53 |

PROBLEM LINERS IN SELECT - COPIN PICTOR

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| | | | 5. TONTHORS | 54 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - | The first transport of the control o | |
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| Average Average Annual Annual Temp, Precip, Range | Zone (mm) (°C) Seasonality | Tropic 1500- above 24 one wet season 2000 May through November | | Tropic 2500- above 24 one wet season 4000 May through January, grading to nonseasonal | Tropic 1500- above 24 one wet season 2000 May through | Tropic 2500- above 24 one wet season 4000 May through November | Tropic 2500- above 24 one wet season 4000 May through January | | Tropic more above 24 no wet season than the east; 4000 May through November in the west | Tropic more above 24 no wet or than dry season 4000 |
|---|----------------------------|--|--------------------|---|---|--|---|-------------------------------------|---|--|
| Crop Climate | Zone | Pladous | | Pluvious | Pladous | Pluvfous | Pluvious | | Madid | Madid |
| Other Soil | Map Units | Oxic Dystropepts Aeric Tropaquepts Typic Tropaquepts | Histic Tropaquepts | Typic Dystropepts Lithic Dystropepts Typic Troporthents | , | | Typic Paleudults Typic Humitropepts Andic Humitropepts Twoic Dustrandents | Typic Vitrandepts Typic Hydrandepts | | Typic Hydraquents Tropic Fluvaquents Histic Fluvaquents Hemic Tropofibrists Hemic Troposaprists Fluvaquentic Troposaprists |
| 44 | ou | 131 | | 126 | | | U5 128 | 2 | | E1 H1 |
| Percent compo- | sition | · | 70 | 20 | 60 20 | 70 | 50 20 20 | | 40 20 20 | 50 20 |
| Dominant Soil | Subdominant Soil | Hydric Dystrandepts Typic Andaquepts | Aquic Dystropepts | Oxic Dystropepts Aeric Tropaquepts | Typic Tropaquepts Histic Tropaquepts | Aquic Dystropepts | Andic Humitropepts Fluventic Dystropepts Andic Dystropepts | Andic Dystropepts | Typic Dystropepts Lithic Dystropepts Typic Troporthents | Oxic Dystropepts Aeric Tropaquepts |
| Dominant Soil Map Unit | (March 1978) | 110 | 127 | 131 | 13 | 127 | 135 | 134 | 126 | 131 |
| RPU No. | (12/1/20) | 54 | | 55 | 56 | 57 | 58 | | | 09 |

| \$ 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | | | distriction of the standard of | | |
|--|---|--|--|--|---------------------|
| 868 | | | 4000 3000 3000 3000 3000 3000 3000 3000 | | |
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| | : | | ©* 013 pml | | |
| | | | 88 | 2 : - | |

CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR

| Seasonality | no wet or dry season | no wet or dry season | no wet or dry season | no wet or dry season | no wet or dry season | no wet or dry season | no dry season |
|--|--|---|---|--|-------------------------|---|---------------------------------------|
| Average Annual Temp. Range (C) | above 24 | above 24 | above 24 | above 24 | above 24 | above 24 | above 24 |
| . Average Annual Precip. | more than 4000 | more than 4000 | more than 4000 | more than 4000. | more than 4000 | more than 4000 | 2500- |
| Zone | Tropic | Tropic | Tropic | Tropic | Tropic | Tropic | Tropic |
| Crop Climate Zone | Mad1d | Madid | Madid sts | Mad1d | Madid | Madid | Pluvid |
| Other Soil Map Units | , | Typic Troposamments Typic Troporthents Hemic Tropofibrists Hemic Troposaprists Fluvaquentic Troposaprists | Typic Hydraquents Tropic Fluvaquents Histic Fluvaquents Hemic Tropofibrists Hemic Troposaprists Fluvaquentic Troposaprists Typic Tropaquepts Aeric Tropic Fluvaquents | Oxic Palehumults Aeric Tropaquepts Hemic Tropofibrists Hemic Troposaprists | Aquic Dystrandepts | | |
| Percent compo- sition | 50 20 20 | 30 E3 30 H1 | 60 E1 20 H1 12 | 50 UI 30 HI | 80 18 | 30 | 20 |
| Dominant Soil Subdominant Soil | Andic Humitropepts Fluventic Dystropepts Andic Dystropepts | Typic Hydraquents Tropic Fluvaquents Histic Fluvaquents | Oxic Palehumults Aeric Tropaquepts | Typic Tropaquepts Aeric Tropic Fluvaquents | Typic Dystrandepts | Lithic Troposaprists Histic Lithic Tropaquepts | Oxic Palehumults Aeric Tropaquepts |
| Dominant Soil Map Unit (March 1978) | 155 | E1 | īn | 12 | 61 | Н2 | n1 |
| RPU No. (12/1/79) | 61 | 95 | 63 | 99 | 99 | 99 . | 67 |

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TOOLS AND RELEASE OF THE PROPERTY AND RESIDENCE

es ess ses

| Seasonality | no wet or dry season | season | season | two wet seasons, March through July and November through January grading to no wet season toward the southern border | center, grading to one wet season in west, May through November & to March throug |
|--|--|---|--|---|---|
| Average Annual Temp. Range (CC) | above 24 | above 24 | above 24 | above 24 | above 24 |
| Average Annual Precip. | more than 4000 | 4000 | 2500-4000 | 1500- | 2500- 4000 1500- 2500 |
| Zone | Tropic | Tropic | Tropic | Tropic | Tropic |
| Grop Climate Zone | Madid | Pluvid | Pluvid | Balneid/ Balneal | Pluvious-Pluvid also Balneous-Balneid and Pladal |
| Other Soil Map Units | Fluventic Humitropepts Aeric Tropaquepts Typic Humitropepts Hemic Tropafibrists Hemic Troposaprists Fluvaquentic Troposaprists | Fluventic Humitropepts Aeric Tropaquepts Typic Humitropepts Hemic Tropofibrists Hemic Troposaprists Fluvaquentic Troposaprists Typic Troporthents | Oxic Palehumults Aeric Tropaquepts Typic Tropaquepts Aeric Tropic Fluvaquents Andic Humitropepts Entic Dystrandepts Andic Tropohumults | Typic Trapaquepts Aeric Tropic Fluvaquents Typic Hydraquents Tropic Fluvaquents Histic Fluvaquents Oxic Palehumults Aeric Tropaquepts | Andic Humitropepts Entic Dystrandepts Andic Tropohumults Oxic Palehumults Aeric Tropaquepts |
| ٥ | 116 H1 | 16 H1 E4 | U1 I2 I16 | 12 E1 | 116 U1 |
| Percent compo- sition | 30 | 30 | 40 | 30 00 | 70 |
| Dominant Soil Subdominant Soil | Typic Tropaquepts Aeric Tropic Fluvaquents | Typic Tropaquepts Aeric Tropic Fluvaquents | Typic Tropohumult Typic Humitropept | Fluventic Humitropepts Aeric Tropaquepts Typic Humitropepts | Typic Troporthents |
| Dominant Soil Map Unit (March 1978) | 12 | 12 | 70 | 11 6 | E4 |
| RPU No. (12/1/79) | 89 | 69 | 70 | 71 | 72 |

July & November through January in the east

| 4. |
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| besiden of the | ibandan ninu | 다. 수 다 전 는 전 보고 | APROHLS BIRNOT | Change and the first of the fir | ###################################### |
| Park Park | କ୍ଷ୍ୟୁ ଅଟେ ଅ | pagos ti | \$2 \$4 \$2 \$3. \$4 \$4 \$4 | | |
| 500 N.J. | | | | 8 P 40 8 75 a | 4.42.4 |
| | | License 47 Street | Concess of the contess of the contest of the contes | | \$ 100 mm |
| | | #3 to 10 to | - Control of Carlo of | | |



| Simbolo: Al |
|--|
| |
| Ubificación: |
| Componentes: 1. Typic Haplust: 1fs |
| 2. Typic Ustropopts |
| 2. Typic Ustropopts 3. Vertic Ustropopts |
| ρ |
| Paisaje: |
| Material de partida: |
| Material subvacente: |
| Flevación: |
| Temperatura media anual: |
| Precipitación media anual: |
| Meses secos: |
| Caracteristicas Componentes 1 2 3 |
| |
| Pendientes |
| Clase de drenaje |
| Profundidad a la roca |
| Textura - suelo |
| - subsuelo |
| |
| Fragmentos rocosis del perfil |
| Permeabilidad |
| Inundaciones Encharcamientos |
| 0 / |
| |
| Grado de limitaciones |
| |
| Dara Cultivas perennes |
| para cultivos perennes |
| para cultivos anuales |
| para cultivos anuales |
| para cultivos anuales |

| Nombre: | | · | |
|--|-----------------------|-------------|-------------|
| - omposición : 1. Typic Tropo | | | |
| 13. Fluvaqueric | | <u> </u> | 207, |
| -2. Home Tr | eposapies's | | 207. |
| Paisaje: Pantano cont | n/2 n/2 | | |
| 213676 : The Wileston Terral | | | |
| Material de partida: Mate | rist organico | (turbe) |) |
| Material subvocente! | | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! _ < 1 | | | |
| Características y | Comp | opentes | |
| cal.ficaciones | · · · · · · | 2 | 3 |
| Pendientes: | 45 7. | 0-270 | 0-27, |
| Clase de drenaje | may pobre | To reposite | muy pobre |
| rofundidad"a la roca | >2 m | >2m | 72 m |
| Textura superficial | tarbes 2 | organice. | organica |
| | , | <u> </u> | |
| Granulometria solimi. | 1517 | 1511 | <51% |
| Fragmentos rocosos dal pertil | < 5 % | <u> </u> | >20 cm |
| Capacidad de retener agua | > 20 cm | 720 cm | 100 / le le |
| Permeab, lidad | rapida permanentes | permanentes | permanor-s |
| Inundaciones Encharca mientos_ | surtemente écida | f. acida | 1. acida |
| Reacción — — — — — — — — — — — — — — — — — — — | baja | baja | laja |
| Sales Sodio Aluminio | | 0-1- | |
| Grado de limitaciones | . ; | | |
| para cultivos arielas | muy yeste | muy funto | muy fuerta |
| para pastos | muy frierte | may fresto | muy lest |
| para mecanización | | any fuorte | nay fund |
| Susceptibilidad a erosion | may tante | taj: | ba ia |
| Limitaciones para uso | · agua | àgu à | 1302 |
| | ., | | |
| | | | |

 \bigcirc

| Composición: 1. Lithic Tra 2. Histor Lithic T | posaprists | | 507 |
|--|----------------------|----------------------------|------|
| 2. Histor Little T | ropaquepts | | 3670 |
| | | | |
| | | | |
| Paisaje: Pantano cos | Tere, plano | | |
| | | | |
| Material de partida: 1. Mo | iterial organico, | 2. Aluvien | |
| Material subjecente: Roca | dura | | - |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! >5,0 | OTO rim | • | |
| Meses secos ! < 1 | | | |
| Caracteristicas y | Compo | prentes | |
| col.ficaciones | 1 | 2 | 3 |
| Pendientes! | 0-2 % | C-27: | |
| Clase de drenaje | muy pobre | inuy jobre | |
| Profundidad a la roca | (0.5 m | < 0.5m | |
| Texture superficial | tut besa | tui bosa | |
| | | • | |
| Granulometria | | france | |
| Fragmentos rocosos del pertil | < 5 7 ₀ | <u> </u> | |
| Capacidad de retener agua | 15-20 /1 | 5-10 cm | |
| Permeab, lidad | rapida | mod. lenta | |
| Inundaciones Encharca mientos | hermanontes | fre runnies Tuentemente | |
| Reacción | fuertementa icida | 2014 a | |
| Saturación de bases | baja | ejed | |
| Sales Sodio Atuminio | _ | | |
| Grado de limitaciones | by up fe-olo | mul fuerte | |
| para cultivos perconec | muy fuerte | muy fuerle | |
| para pastos | muy fuerte | muyfurdo | |
| para mecanización | muy fuerta | may freelo | |
| | hais | beja | |
| Susceptibilidad a erosión | paja | | |

Costa Milatra rorle de Siguiries

| , Н З | | | |
|---|--------------|--------------------|------------|
| Simbolo: H3 | | | |
| Nombre: | | | |
| Vb - rese | - 6 1 | | |
| Composición: 1. Lithic | | | 40% |
| Carry 2. Lithic | | | 207. |
| 3. Lithic | Tropo Sibris | ts | 207. |
| | | | |
| Paisaje: <u>Cumbre</u> de | in the Tree | | |
| con pendienics a | de | · . | |
| Material de partida: (1) 1 | | 1: (2) Ceni | 235 |
| Material subjecente! R | oca dura | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses sccos ! | | | • |
| Características y | Com | ponentes | |
| cal.ficaciones | | _2 | 3 |
| Pendientes . | 15-60% | 5-10% | 0-57. |
| Clasa de drenaje | buc: 2 | In / · · | no potre |
| Profundidad a la roca _ | 0.3-1 n | < 0.5 ¹ | 0.5-1 1 |
| Texture: superficial | turbosa | dranes | turbos > |
| Suelo | | | |
| Granulometriasubsuelo | (roca) | franca | (1000) |
| Fragmentos rocosos del perfil | <5 1/6 | (5% | 45% |
| Capacidad de retener agua | >20 cm | 10-15:11 | 15-20 cm |
| Permeab, lidad | Ind. rapida | mod. lorta | mod. rapi |
| Inundaciones Encharcamientos | • | 1 17 1 6 | permanerte |
| Reacción | facida | - sinda | S. acida |
| Saturación de bases | baja | boja | baja |
| Sales Sodio Aluminio | | | |
| | mu, fueste | no, in it | muy feer's |
| Grado de limitaciones para cultivos anual | may learto | responde. | may farri |
| para pastos | muy fuerte | has frate | muy fue. |
| para mecanización | muy bele | ligero | may lorde |
| Susceptibilidad a erosión_ | may alta | :11: | baji |
| Limitaciones para uso | frío | frio | trio |
| · . | fertilitid. | profundided " | 2249 |
| 1 Producer 11 Producer 1 In process | pandionte | | |
| 100000000000000000000000000000000000000 | | | |

Cordillera de Talaminea

| Nombre: | | | |
|---|----------------|-------------|-------------|
| Composición: 1. Typic Hyd | raquents | | 30 % |
| 2. Tropic F | | | 30 7. |
| 3. Histic F | | , | 35 % |
| | 10.00 / 10.112 | | |
| Paisaje: Vegas ponta | nusse cost | ? } a S | |
| con pendientes de | 0 2 2 % | | |
| Material de partida: Al | | | |
| Material subjecente! | | | |
| Elevación 1 De O | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | • | |
| Características y | Com | ponentes | |
| calificaciones | | _2 | 3 |
| Pendientes | 0-27. | 0.27. | 0-27, |
| Clase de drenaje | muy pobre | amuy pobre | may retr |
| Profundidad a la roca | >2 m | 72 m | >2 in |
| Textura superficial | Franca | dranca | organica |
| | | | |
| Granutometriasilisida | france | france | france |
| Fragmentos rocosos del pertil | < 5 % | < 57. | < 5% |
| Capacidad de retener agua | 15-20 cm | 15.20 cm | 723 00 |
| Permeabilided | ·mod.lenta | prod lent- | irod lenta |
| Permesb, lidad Inundaciones Encharcamientos | permenerles | frecuentos | permenente |
| Reacción | lig. acida | lig arida | lig. acida |
| Saturación de bases | alta | 21+2 | alta |
| Sales Sodio-Alternio | | | |
| Grado de limitaciones para cultivos - les | muy fuerto | muy fue, to | muy foeite |
| para cultivos | try frente | may fords | Tray dueste |
| para pastos | may furite | muy forte | inuy fuert |
| para mecanización | muy forte | muy furrite | Inus frest |
| Susceptibilidad a erosión | baja | us ja | baja |
| Limitaciones para uso | 2902 | 2902 | 2 3 4 5 |
| | | | |

| emposición: 1. Typic T | | | 60% |
|--|-----------------|-------------------|-------------|
| 2. Typic I | instropopts | | 20% |
| 3. | • | | |
| | | | |
| Playas y to | rrazas cost | eras | |
| con pendierilas de | | | |
| Material de partida: Arc | | playa | |
| Material subvacente! | | | |
| Elevación I De O | | | |
| Temperatura anual: | | | |
| recipitación anual! | | | |
| Meses secos!. | | 1 | |
| Características y | Comp | onentes | |
| calificaciones | | | 3 |
| endientes | 0-5% | | |
| Clase de drenaje | buena | buena | |
| rofundidad a la roca | 72 m arenosa | 72 h | |
| Textura superficial | | to Lithosp | |
| - | | | |
| Franklometria subjecto | 2 renosa | france | |
| Fragmentos rocosos del perfil | < 5 % · · · · | < 57 ₆ | |
| apacidad de retener agua | (5 cm | 5-10 cm | |
| Permeab, lided | nuy rapida | mid rapida | |
| nundaciones Encharca mientos_ | Junite mente | hunca | |
| Reacción | acido | f. acida media | |
| Saturación de bases | media | meala | |
| ales Sodio Atuminio | | • | |
| Grado de limitaciones perennes | | moderals | |
| | muy fuerte | <u>Juesta</u> | |
| para pastos | muy fuerte | ligers | |
| para mecanización | 11gero | mgers | |
| Susceptibilidad a erosión Limitaciones para usó | textura | tertur: | |

1. Por viento.

. P/2/22 35

501

E3 Simbolo: [=4]

| ` A1 | • | |
|-------------|---|------|
| Nombre: | | |
| 1.01/131.61 | | |
| | | |

| Composición: 1. Typic Tro | | | 40 % |
|---|-------------|---------------|------|
| 2. Typ. Tro | opentle its | | 4070 |
| 3. | • | | |
| | | | |
| Paisaje: Playas | | | |
| con pendinie. | | | |
| Material de partida: Are | | | |
| Material subvacente! | 1. gual | | |
| Elevación 1Do O | | | |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos! | | 1 | |
| Caracteristicas y | | ponentes | 0 |
| <u>caliticaciones</u> | | 2 | |
| Pendientes | | 0-576 | |
| Clase de drenaje » | | buens | |
| Profundidad a la roca | >2 m | >2 m frame | |
| Textura superficial | | | |
| Granulometri a subsuelo | 2 le hos à | franca | |
| Fragmentos rocosos del pertil | (57. | < 51% · | |
| Capacidad de retener agua | < 5 cm | 5-10 cm | |
| Permeabilidad | muy rapida | mod. tapida | |
| Inundaciones Encharcamientos_ | nunca | hunca | |
| Reacción | f. scida | t. acida | |
| Saturación de bases | media | media | |
| Sales Sedio Aluminio | | | |
| | | m oderedo | |
| Grado de limitaciones para cultivos anuales | muy fuerte | moderato. | |
| para pastos | muy ducate | ligero | - |
| para mecanización | ligero | ligero | |
| Susceptibilidad a erosión | alta 1 | baja | |
| Limitaciones para uso | textura | espuma | |
| · | | delmar | |
| 1. Por viento | | | |

Plant Hiller

| Simbolo: | |
|---|--------|
| Nombre: | |
| Composición: 1. Typic Troporthents | 70.70 |
| 2. | |
| 3. | |
| | |
| Paisaje: Terrazas fluviales | |
| con pendientes do 0 2 570 | |
| Material de partida: Aluvión | |
| Material subvacente: Iqual | |
| Elevación ! | |
| Temperatura anual: | |
| Precipitación anual! | |
| Meses secos! | |
| Características y - Compo | nentes |
| <u>coliticaciones</u> | _23 |
| Pendientes 0-57. | |
| Clase de drenaje buena | |
| Profundidad a la roca >2 m | |
| Textura superficial (pediagosa) | |
| | • |
| Granulometriasuline arenosa | |
| Fragmentos rocosos del pertil 20-35 70 | |
| Capacidad de retener agua 0-5 cm | |
| Permeab, lidad mod. rapida | |
| Inundaciones Encharcamientos raras | |
| Reacción J. acida | |
| Saturación de bases <u>hedia</u> | |
| Sales-Sodio Aluminio | • |
| Grado de limitaciones miderado | |
| para cultivos <u>moderado</u> | |
| para pastos ligero para mecanización Suerte | |
| | |
| Susceptibilidad a erosion baja Limitaciones para uso fragmentos | |
| Limitaciones para uso tragmentos | |
| | |

Value is the same

Service in

Coper

| Sim | 60% | |
|-----|-----|--|
| A/ | 1 | |

| Composición: T. L. The | Uster 1/ | 3 / | 1/2 |
|---|---|-------------|-------------------|
| 2. Lith | Ostrope, to | | .70 |
| 3. L. 1h. | Al statustists | | 7. |
| 3, 2, 1, 1, 1 | 1 | 20 | / 0 |
| Paisaje: Mortañas b | مان | | |
| Material de partida: Materia | les colunites, | 1 Hsidualos | |
| Material subjecente! Roc | | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos! | | | |
| Características y | Compo | nentes | |
| cal.ficaciones | | _2 | _3 |
| Pendientes | 30-60% | 30-601% | 15-45% |
| Clase de drenaje | buens: | bu= | buer. |
| rofundidad a la roca | < 0.5 m | 20.5 % | 3.5 % |
| Texture: superficial | fren. 2 | 7. | drant. |
| | | - | <u> </u> |
| Francometria subsula | (rors) | rec-1 . | (rot=1 |
| Fragmentos rocosos del perfil | 2.23% | 5-254. | <57. |
| apacidad de retener agua | 5-10 c: | <u> </u> | 5-10cm |
| Permeab, lidad | modered 2 | tron. lesta | med. lorta |
| Inundaciones Encharcamientos_ | hunc2s | Noncas | hun: 45 |
| Reacción | 117.20140 | lig. scida | 1.3.2010 |
| Saturación de bases | a /ta | 3/44 | 3/42 |
| ales Sodia Aluminio | | | |
| Grado de limitaciones para cultivos percentos | my Juste | may for to | بالروسية الإطاريل |
| para cultivos anda | has trede | muy fuerto | muy fue, |
| para pastos | - furile | + onle | |
| | may fueste | , may forte | may lus |
| pora mecanización | | 1 1 1 | 101111 |
| ius capti bilidad a erosion | muy alta | profundad | may alle |

Paration Some Flow

I was a publication

| Simbolo: | | | |
|---|--------------|--|------|
| Nombre: | <u> </u> | a and a second s | |
| Composición: 1. Typic | Sulfa quents | | 40% |
| • | Fluvaquenis | | 4070 |
| 3, | , | | |
| | | | |
| Paisaje: Pantano de | | | |
| cu pendir. | do 0 = | 2 1/0 | |
| Material de partida : | | | |
| Material subjecente! | Iqual | | |
| Elevación 1. De | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos !. | | • | |
| Características y | Comp | onentes | |
| calificaciones | | _2 | 3 |
| Pendientes | 2.2% | 0.27/ | |
| Clase de drenaje | may politica | may prive | |
| Profundidad a la roca | <u> </u> | > 2 n | |
| Textura: superficial | franca. | State | |
| | | | - |
| Granutometriasahsado | franca | irince | |
| Fragmentos rocosos del pertil | <u> </u> | <u> </u> | |
| Capacidad de retener agua _ | 15 20 1: | 15.20 m | |
| Permeab, lidad Inundaciones Encharcamientos | mod lort: | ina lorta | |
| | | - A recuestes | |
| Reacción | lig. acida | lig. scidi | |
| Saturación de bases | alta | 21/5 | |
| Sales Sodio Aluminio | | | |
| Grado de limitaciones | . () | | |
| para cultivos | may facite | muy funde | |
| para pastos | | in fante | |
| para mecanización | min to do | 100. 100.12 | |
| Susceptibilidad a erosion_ | | baja | |
| Limitaciones para uso _ | aculez | - ar in | |
| | John St. | Inurdaciones | |
| 1. Se lajo a Filmminante | | | |
| acida con el dissaje | | | |

Símbolo:

| Ubificación: |
|--|
| Tropaquepts |
| Componentes: 1. Typic [Frops juents] 2. Tropic Fluvaquents |
| 3. Udic Pellusterts |
| Paisaje: |
| Material de partida: |
| Material subyacente: |
| Flevación: |
| Temperatura media anual: |
| Precipitación media anual: |
| |
| Meses secos: Componentes Características 1 2 3 |
| Caracteristicas 1 2 3 |
| Pendientes |
| Clase de drenaje |
| Profundidad a la roca |
| Textura - suelo |
| |
| - subsuelo |
| Fragmentos rocosos del perfil |
| Capacidad de retener agua |
| Permeabilidad |
| Inundaciones Encharcamientos |
| Reacción |
| Saturación de bases |
| Grado de limitaciones |
| para cultivos perennes |
| para cultivos anuales |
| para pastos |
| para mecanización |
| Susceptibilidad a etosion |
| Limitaciones para uso |
| |

| A/ A | | |
|---|----------|----------|
| Nombre: | | |
| C 1 Tu Tunanum+ | <u> </u> | <u> </u> |
| Composición: 1. Typic Tropaquepts 2. Acric Tropic Fluvaqueris | | 7, |
| 3. | | _/3 |
| : | | |
| Paisaje: Bajos, en el planicie costero | | |
| con pardarios da 0 : 2 % | | |
| Material de partida: Aluvión . | | |
| Material subjecente: Toual | | |
| Elevación 1 | 1 | , |
| Temperatura anual: | | |
| Precipitación anual! | | |
| Meses secos ! < 1 | | |
| Características y <u>Componentes</u> | | |
| calificaciones 1 | | _3 |
| Pendientes : 0-27. 0-27. | | |
| Clase de drenaje muy potre pobre | | |
| Profundidad a la roca >2 m >2 m | | |
| Textura: superficial franca franca | | |
| Granulometriasubsuelo areillosa franca | | |
| Fragmentos rocosos del pertil <570 5-20% | | |
| Capacidad de retener agua 15-20 cm 15-20 cm | | |
| Permeabilidad lenta mod lenta | | |
| Thundaciones Encharcamientos frecuentes frecuentes | <u> </u> | |
| Reacción fuertemente mod acida | | |
| Saturación de bases <u>media</u> media | | |
| Sales Sedio Alumanio | | |
| Grado de limitaciones muy fuerte muy fuerte para cultivos anuales muy fuerte fuerte | | |
| | | |
| para pastos fuerte fuerte | | |
| para mecanización muy tuerte fuerte | | |
| Susceptibilidad a erosion baja baja | | - |
| Limitaciones para uso drenaje drenajo | . 6 | |
| / hunder str | 73 | |

| Simbolo: | | | |
|-------------------------------|---------------------------------------|-------------|----------|
| Nombre: | | | |
| Composición: 1. Typic Tro | 22222 | | 7. |
| 2. Histic Tr | upaque pri | | 7. |
| 3, | 7 - 7 0 - 713 | 4 | |
| | • | | |
| Paisaje: Pantano | | | |
| con pendieres do | 0 = = 70 | | <u> </u> |
| Material de partida: Mate | rial lacuistre | o Eluvión | |
| Material subvacente! | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | |
| Elevación I | | | |
| :Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Compa | nentes | |
| _cal.ficaciones | | _2 | 3 |
| Pendientes | 0-27 | | |
| Clase de drenaje | may poline | nay fabre s | |
| Profundidad a la roca | -> 2 m | | |
| Texturz: superficial | franca | Organie a | |
| Granulometria subsuilu | arcillus = | arcillosa | |
| Fragmentos rocosos del perfil | < 57. | < 5% | |
| Capacidad de retener agua | 15.20 cm | 721 cm | |
| Permeabilided | lerita | lerta | |
| Inundaciones Encharcamientos_ | frequentes ' | permanentes | |
| Reacción | mod. acida | hod acida | |
| Saturación de bases | media | media | |
| Sales Sodio Aluminio | | | |
| Grado de limitaciones | muy fuerte | may fuerte | |
| para cultivos | muy foorte | may fuerte | |
| para pastos | fuerto | funte | |
| para mecanización | muy fuerta | may freste | |
| Susceptibilidad a erosion | · boja | baja | |
| Limitaciones para uso | denajo | droraje | |
| | | | |

| Simbolo: | | | |
|-------------------------------|---------------------------------|---------------------------------------|------|
| Vombre: | | | |
| | 6 | | |
| emposicion: 1. Typic | Placandopts | | 4070 |
| 2. Typic | Dystrarnopts | | 40 % |
| 3. | • | | |
| | | | |
| Paisaje: Montañas | | | |
| con pondienta de | | | |
| Material de partida: | | | |
| Material subvacente! | sed dura | | |
| Elevación I | | | |
| Temperatura anual: | | • | |
| recipitación anual! | | | |
| Meses secos ! | | 1 | • |
| Características y | | ponentes | , |
| col.ficaciones | | 2 | 3 |
| Pendientes | | 15-1157 | |
| Clase de drenaje | Imperfacts | | |
| rofundidad a la roca _ | 0.5-1 m. | | |
| Texture: superficial | Franca | Avanta | |
| _ | | | |
| Granulometriasississis | Franca | Jrine. | |
| Fragmentos rocosos del perfil | <5% | <51/ ₀ | |
| apacidad de retener agua _ | 10-15 ch | 1)23 cm | |
| Permeabilidad | mod. losts | moderada | |
| Inundaciones Encharcamientos | | nunca | |
| Reacción | f. acida | f. 201d2 | |
| Saturación de bases | bajo | bojo | |
| soles Sodio Alumimo | | | |
| Grado de limitaciones | muy fur. 10 | may funde may funde | |
| para cultivos porentos | muy fue, to | · · · · · · · · · · · · · · · · · · · | |
| para pastos | miderado | moderato | |
| | reoderedo | Justile | |
| para mecanización | | | |
| ous captibilidad a erosion_ | modera da | modernda | |
| | moderada frio profundidai | frio Producte | |

Cordillora de Talanaria

| Nombre: | | | |
|-------------------------------|--------------|------------|-----|
| Composición: T. Typic I | Dustrandents | 60 | c7. |
| | Futraid pts | | 7. |
| 3. | | | |
| <u>J.</u> | | | |
| Paisaje: Colinos V | oleanicas | | |
| Material de partida: | enizas | | |
| Material subjecente! | , | | |
| Elevación I | • | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Comp | onentes | |
| cal.ficaciones | | 2 | 3 |
| Pendientes | 15-30 % | 15-30% | |
| lase de drenaje | b ue na | bucha | |
| rofundidad a la roca | >2 m | >2 m | |
| Texture superficial | ÷ranca | trans. | |
| suelo | | | |
| Granulometria subsuelo | france | franca | |
| Fragmentos rocosos del perfil | <5% | <i>ر5%</i> | |
| Capacidad de retener agua | >20 cm | 1 /20 cm | |
| Permeabilidad _ | mederad a | mod ripido | |
| Inundaciones Encharca miento | | hunca | |
| Reacción _ | mod acid. | 119.26112 | |
| Saturación de bases _ | me, dia | i/te | |
| Sales Sodio Aluminio | | | |
| Evada de limitaciones. | | 1,- | |
| para cultivos | - ligere | 1/3000 | |
| para pastos _ | ligero | ligero | |
| para mecanización | Luc, te | . fonte | |
| Susceptibilidad a erosion_ | 3/15 | · alt= | |
| Limitaciones para uso _ | pondiortes | pentionin | |
| - | Sc 7(11) | Se quiz | |

Cointende ou to Verticate Pacific

| | | | ₽ |
|-------------------------------|--------------|--|---------------------------------------|
| Ubificación: Cord. ller | · Central | ; fronter: ponami | To a Villa Ner |
| | | | |
| Componentes: 1. Typic | Dystrandays | • ' | 40 % |
| 2. Typic | Vitrar dop's | | 20% |
| 3. 7/pic | Hydrardop | 1's | 207. |
| | - | | |
| Paisaje: Montañas | volcanicas | | |
| con pondientes de | 5 = 30 | 7. | |
| Material de partida: | | | |
| Material subvacente: | | | • |
| Elevación: | | | |
| Temperatura media anu | 2/: | | |
| Precipitación media anu | | | |
| Meses sccos: | | | · · · · · · · · · · · · · · · · · · · |
| 1,16262 26.002 · | | Component | |
| Caradanatas | 1 . | * <u>-</u> | 3 |
| Caracteristicas Raylostes | 5-30 % | 2 5.21 7 | 5-30 % |
| Pendientes | | 5.36 % | |
| Clase de drenaje _ | buena | buens | buens |
| Profundidada la roca _ | · · | | 72 m |
| Textura - suelo | franca | g runce | 2101 1552 |
| - 0.1. | | i i | 2// |
| - subsuelo | 7 ranc= |) rai 2 | 210//352 |
| Fragmentos rocosis del perfil | | < 5 % | <u> </u> |
| Capacidad de retener agua _ | 720 0 | 220 cm | 720 cm |
| Permeabilidad | medocada | hod bapala | rish horis |
| Inundaciones Encharcamientos | <u>hare</u> | 1000 | T 1127 . |
| Reacción | 4.20.2 | hist and | <u>Myssile and a</u> |
| Saturación de bases | bajz | 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 | baja a |
| Grado de limitaciones | | | |
| para cultivos perennes_ | ligero | furvle | ligero |
| para cultivos anuales | 11 7010 | fuerte | Juerle_ |
| para pastos | Lock | miderado | :/19270 |
| para mecanización | fuerte | Associate . | fuorte |
| Susceptibilided a erosión | 1. | 200 | fuerte |
| Limitaciones para uso | pendien les | frio, | 1/41/25 |
| O Para Scot | 261962 | pondionles | acidez |
| | | | pondionles |
| | | | |

Símbolo: I 7

| Nombre: | | | |
|---|--------------|------------|-----|
| Composición: 4.2-Aquic I | Dystrandapts | | 20% |
| 7.1.7/pr | Systrandopts | | 50% |
| 3. | | | |
| Paisaje: Mortañas - | olcánicas | | |
| con pendientos d | e 5 a 30 | 0 7 | |
| Material de partida: | (Pr. Z35 | | |
| Material subjecente! | | | |
| Elevación I | , | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos! | | | |
| Características y | Comi | ponentes | |
| calificaciones | | _2 | 3 |
| Pendientes | 5-30% | 5-15 % | |
| Clase de drenaje | buena | Imperfecta | |
| Profundidad a la roca | >2 m | >2 m | |
| Texturz: superficial | franca | franca | |
| Granulometrias. Isuslo | Stance | orc.llos. | |
| Fragmentos rocosos del pertil | <5% | <5°/. | |
| Capacidad de retener agua | >20 cm | >20 cm | |
| Permeab, lidad | modereda | mod lenta | |
| Inundaciones Encharcamientos_ | nuncis | nuncas | |
| Reacción | f. 201 da | f. ácida | |
| Saturación de bases | bois | medi: | |
| Sales Sodio-Aluminio | | | |
| Frado de limitaciones para cultivos arollos | ligero | fur, te | |
| | ligero | Modorado. | |
| para pastos | ligoro | 1: gero | |
| para mecanización | fuoite | roderedo | |
| uscoptibilidad a erosion | reedie | trodie | |
| imitaciones para uso | pondicile | cherièje | |
| | ar dez | perdianles | |

Herodie San Jose

Coldellors Contral

| Simbolo: I 9 | • | | |
|-------------------------------|---------------------|--|-------|
| Nombre: | | | |
| | | and the second section of the second section of the second | |
| Composición: 1. Typic | Dystrandicts | | 8017. |
| 2. | , | | |
| 3. | | | · |
| | | | |
| Paisaje: Terrazas a | luviales | | |
| con perdin; | 10. do 0 = | 57. | |
| Material de partida: Alu | vion derivado | do coniz | ٥ د |
| Material subvacente! | Igual | ` | |
| Elevación I | • | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! < 1 | | | |
| Características y | Comp | prentes | |
| <u>calificaciones</u> | | _2_ | 3 |
| Pendientes | 0-5% | | |
| Clase de drenaje _ | buena: | | 9 |
| Profundidad a la roca | > 2 m | | |
| Textura: superficial | franca | | |
| · | | ~ | |
| Granulometria sualo | - Franca | | |
| Fragmentos rocosos del perfil | < 5 %. | | |
| Capacidad de retener agua | >20 cm | | |
| Inundaciones Encharca mientos | moderada | | |
| Reacción | , , | | |
| Saturación de bases | mod. acida | | |
| Sales Sodio Aluminio | - | | |
| Grado de limitaciones | 1 | | |
| para cultivos anuales | 11.gero moderado | | |
| para pastos | ligets | • | |
| para mecanización | ligero | | |
| Susceptibilidad a erosion_ | 6269 | | |
| Limitaciones para uso | Jijacion | | |
| | de tostono | | - |
| | lluviss | | 3 |
| | | | |

| Símbolo: Nombre: | I | 11 |
|---------------------|---|----|
| | | |

| C / / / | | , | |
|--|--------------|------------|---------|
| Composicion: 1. L, this | | | 40 % |
| 2. Typir Dy | | | 20 7. |
| 3. Afloran | antos dos 1. | 2 Va | 20 7. |
| Paisaje: | | | |
| Material de partida: | • | | |
| Material subjecente! | | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Com | ponentes | |
| cal.ficaciones | | _2 | 3 |
| Pendientes . | 15-100% | ±- 30% | 15- 10 |
| Clase de drenaje | busha | buera | |
| Profundidad a la roca | < 0.5 m | 1-2 m | 0 |
| Textura superficial | Stanca | franca | |
| Suelo - | | , - | |
| Granulometriasolinde | (roca) | franca i | |
| Fragmentos rocosos dal perfil | 20-35% | 5-20% | |
| Lapacidad de retener agua | 5-10 cm | >20cm | 0 |
| Permeab, lidad | mod tapida | mod rapide | _ |
| Inundaciones Encharcamientos_ | nuncs | hurri | _ nunca |
| Reacción | f. arida | f. Lud. | |
| Saturación de bases | baja | baja | |
| ales Sodio Atuminio | | | |
| Frado de limitaciones para cultivos prositos | tuerte | 119000 | , , |
| para cultivos proclas | medicade | ligero. | Inuti |
| para pastos | miderado | 11900 | |
| para mecanización | may fuerte | muy furite | |
| usceptibilidad a erosión | <u> </u> | media | |
| imitaciones para uso | roresidad | hoces lad | |

| Simbolo: | | | |
|-------------------------------|---------------|--|---------------|
| Nombre: | | | |
| | 1 1 | | |
| | imit ropepts | | 070 |
| 2. Andie | -lumitropopts | | 307. |
| 3. Oric D |)ystrope pts | | 0% |
| | | | |
| Paisaje: Colivas (pi | | | |
| con pondiortes e | d. 5 a | 30 % | |
| Material de partida: Co | | | y 1851 235 |
| Material subjecente! | 1, | | |
| Elevación 1 D. G | | 500 m | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Comp | opentes | |
| cal.ficaciones | | _2 | 3 |
| Pendientes | . 5-30% | 5-30 | 5-15% |
| Clase de drenaje | buern | $f_{\mathcal{D}^{\prime}(\mathcal{F}_{\infty})}$ | ju~; . |
| Profundidad a la roca _ | >2 m | . >2 h | > 2 m |
| Textura: superficial | arc. 11052 | ared size | 213-11028 |
| Suelo | | | |
| Granulometria subsuclo | arcillosa | arc1/1652 | arcillosa |
| Fragmentos rocosos del perfil | <5% | <5% | < 5% |
| Capacidad de retener agua | 15.20 cm | >20 cm | 15-20cm |
| Permeabilided | mod lenta | mod.lent. | lenta |
| Inundaciones Encharcamientos_ | huncs | hunca | hunca |
| Reacción | f. deids | f.acida | muy f. a'cida |
| Saturación de bases | media | media | baj 2 |
| Sales Sedio Atumino | | | |
| Grado de limitaciones | 1120 | //902 | moderado |
| para cultivos perentis | Moderado | moderate | moderado |
| para pastos | ligero. | ligero | 1,1010 |
| para mecanización | fuerte | fuerte | moderato |
| Susceptibilidad a erosión | alts. | 5/12 | media |
| Limitaciones para uso | pondientes | pendientes | acidez |
| | Iluvi-5 | 1/0 2/25 | pendienta |
| | | | llaries |
| | | | |

| Simbolo: | | | |
|-------------------------------|----------------------------|-------|---|
| Nombre: | | | |
| Composición: 1. Andic H | umitropopts | 707. | |
| 3. | | | |
| | - | | |
| Paisaje: Mesets y | colinas | | |
| con pendiantos | de 15 a 6 | 0 % | |
| Material de partida: | Cenizos | | |
| Material subjecente! | | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos! | | | |
| Características y | Compon | entes | |
| cal.ficaciones | | 2 | 3 |
| Pendientes | 15-30% | | |
| Clase de drenaje | bovens | 4 | • |
| | >2 m | | |
| Texturz: superficial | arcillos: | | |
| Granulometriasulsuilo | arcillos. | | • |
| Fragmentos rocosos del pertil | < 5 1/6 | | |
| Capacidad de retener agua _ | >20 cm | | |
| Permeabilided | mod. lenta | | |
| Inundaciones Encharcamientos | livita | | |
| Reacción | f àcida | | |
| Saturación de bases | media | | 4 |
| Sales Sedio Aluminio | | | |
| Grado de limitaciones | ligeto | | |
| para cultivos anucios | moderado | | |
| para pastos | ligero | | |
| para mecanización | furrle | | |
| susceptibilided a erosion | alta | | |
| imitaciones para uso | pendionle | | |
| |) U VI = 5 = C (de Z | | |
| | • | | |

| Nombre: | | | |
|---|--------------|-----------------------|--------------------|
| Composición: 1. Andic H | umit ropopts | | 10 % |
| 3.2. Ander T | | | 0% |
| · 3. L | toni injects | | 20.70 |
| -2. Frtie 30 | | | |
| Paisaje: Montañas | , | | |
| con pendicitos e | de 15 : 60 | 70 . | |
| Material de partida: Ceni | zas y materi | eles coluvizio | 102018/ |
| Material subvacente: Ro | calledimen | reris met | - Trayfile |
| Elevación I | | | 1 |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos ! | | • | |
| Caracteristicas y | Comp | onentes | |
| calificaciones | | _2 | 3 |
| Pendientes : | 30-60% | 15-45 7 | 15-307. |
| Clase de drenaje | buens | buen- | 63012 |
| Profundidad a la roca | 1-2·m | 72 m |)2 m |
| Texturz: superficial | 2+01/1052 | - Francia | 2 FC+ , 35 % |
| Granulometria subsuelo | arcillosa | Etakou | 3 m. 1/052 |
| Fragmentos rocosos del pertil | | 25% | 5-20% |
| Capacidad de retener agua _ | 15-10 cm | 7:00. | 15-20 cm |
| Permeabilidad | mod lenta | Insdereda | med lenta |
| Inundaciones Encharca mientos | | hones | hunca |
| Reacción | i, acida | fairda | f. 2011 a |
| Saturación de bases | media | baja | media |
| Sales Sono Atuminio | | | |
| • | ligen | 1. | , |
| Grado de limitaciones perennes para cultivos anuales | hodorado | higher historials. | ligero moderado |
| para pastos | ligero | lights | li gers |
| para mecanización | may fueito | furitr | ign. in |
| Susceptibilidad a erosion_ | otla veni | alta | 2/1/2 |
| Limitaciones para uso _ | pendientes | perdiciles | perder : |
| | lluvias | Huvis | Huvies |
| | 301465 | acidez | 20,102 |

| Simbolo: I 15 Nombre: | | | |
|---|---------------------------------------|---------------------|----------------------|
| Composición: 1. Andi Ust | 4 Huntres | + | (0.67 |
| 2. Aeric Ti | ran i que e te | P P I P | 60% |
| 3. | Payme B13 | | 20 % |
| • | · · · · · · · · · · · · · · · · · · · | | |
| Paisaje: Colinas (, | prodol mani | (e) v v 1/05 | |
| con panders. | do O a | 30 7. | |
| Material de partida: (1) Cer | Izas antiques | (2) = // | 7 7 7 7 1 |
| Material subvacente! | Inuil | | <i>y</i> • · · · · · |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos ! | | | |
| Características y | Com | ponentes | |
| calificaciones | 1 | _2 | 2 |
| Pendientes . | 5-30% | 0-57. | |
| Clase de drenaje | buena | -pubre | |
| Profundidad a la roca | >2 m | >2 m | |
| Textura: superficial | 2 + 11/1/52 | France | |
| suelo | | | |
| Granulometria subsuelo | arcillosa | atcillaca | |
| Fragmentos rocosos del perfil | 45%. | 5-20% | |
| Capacidad de retener agua | >20 cm | 15-20 cm | |
| Permeabilided | mod lont: | Jenta . | |
| Inundaciones Encharca mientos_ | hunca | raras | |
| Reacción | Irst Line | 11.01 2 10 | |
| Saturación de bases | media | media | |
| Sales Sodio Aluminio | | | |
| Grado de limitaciones | ligero | , | |
| Grado de limitaciones para cultivos anueles | ligero | duerte miderado. | |
| para pastos | ligoro | linero | |
| para mecanización | fuerte | ligero | |
| Susceptibilidad a erosión | a-1ta | لاعزاء | |
| Limitaciones para uso | pendiantes | droneje | |
| | | | - |

| Nombre: | | | |
|---|----------------|----------------|------------|
| C | +1, + | | · ~ q |
| Composicion: 1. Fluveriti | Tramitre popis | | 56 7 |
| 2. Aeric Tr | | | |
| 3. 7/pm | Jum. 1 repopts | | , |
| Paisaje: Terrazas | flovia - y | plancies de In | Indición |
| con pendientes | | | |
| Material de partida: Al | uvich | | |
| Material subjecente! | | | |
| Elevación I De 2 | ٠ ٤ | m | |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos! | | | |
| Características y | Com | ponentes | |
| cal.ficaciones | | | 3 |
| Pendientes | 0-57. | 0-2% | 2.376 |
| Clase de drenaje | | polic | burnon |
| rofundidad a la roca _ | >2 m | 7210 | >2 m |
| Textura: superfictal | Franca | · france | franc: |
| . | | | |
| Granulometriasoler | Franca | a miliona | sin doze |
| Fragmentos rocosos del pertil | 5-20% | X54. | < 5% |
| Capacidad de retener agua _ | 15-20 cm | 15-20 cm | 5-20cm |
| Permeab, lided | mod. lenta | lenta | mod. lenta |
| Inundaciones Encharcamientos | Comunes | raras | raras |
| Reacción | lig. ácida | mod arido | hod acida |
| Saturación de bases | tr. die | mod. | mont & |
| Salos Sodio-Aluminio | • | | |
| C 1 1 lim torings | moderado | territe | Longe |
| para cultivos para cultivos para cultivos | moderado | moderadu. | Hopers . |
| para pastos | 113610 | 1 nere | 1-9018 |
| para mecanización | hach | 1. Jane | Lucro |
| Susceptibilidad a erosion_ | laj: | baja | baja |
| Limitaciones para uso _ | Martin in | dienejo | Huvis |
| • | Hurias | 1164125 | |

| Composicion: 1. Ustic | Aun district | : | 70 | =7 |
|--------------------------------|--------------------|------------|---|-----|
| 2. Andre | Hum Graphyd | 21-645 | 20 | |
| 3. | · | 1 | ~ ~ ~ | / 0 |
| | | | | |
| Paisaje: Colinas (pio | do montel | | | |
| con pandientes d | | c/ | | |
| Material de partida: Ce | nizas. | | | |
| Material subvacente! | | | | |
| Elevación I | | | | |
| Temperatura anual: | | | | |
| Precipitación anual! | | | | |
| Meses secos : | | | | |
| Características y | _ Com | ponentes | | |
| calificaciones | | _2 | | 3 |
| Pendientes | 5-307 | 5-30% | _ | |
| Clase de drenaje | byens | busis | | |
| rofundidad a la roca |)2 m | >2 m | *************************************** | |
| Texturz: superficial | arc. 1352 | | | |
| suelo | | | | |
| Francionetriasubsuelo | 2101/1052 | arcillos: | | |
| ragmentos rocosos del perfil _ | < 5 % | <5% | | |
| apacidad de retener agua _ | 15-20 cm | 1>200in | | |
| ermesbilidad | mod lerta | mice lent: | | |
| nundaciones Encharcamientos | hones | t,ure e | | |
| reacción | mod acida | mod. acida | | |
| aturación de bases | media | media | | |
| ales Sodio Aluminio | | | | |
| rrado de limitaciones | | | | |
| para cultivos perennos | moderado ligero | Mateir do | | |
| para pastos | 1190 0 | ligen | | |
| para mecanización | Juerte | turite . | | |
| isceptibilidad a erosión | medi: | media | | |
| imitaciones para uso | pendiertes | pendiorina | | |
| • | seguia | seguia | | |

Mily na - Cañas

Cord lers contra Carl then & Game

L'exterte Pasition

| Simbolo: | | | |
|--|---------------|------------|--------------------|
| Nombre: | | | |
| Momsre: | | | |
| Composición: 1. Typic Usti | ronante | | 40% |
| 2. Lithic Ust | authoric L | | 20 % |
| 3. Vertic Us | | | 207. |
| J. VEFTIC US | 1107-713 | | |
| Paisaje: Llanura and | , lada | | |
| cur pendiculas de | 0 0 0 1 | | |
| Material de partida: Material | os alundos co | 14012 102 | tuales |
| Material subvacente! To | | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual: | | • | |
| Meses sccos ! | | * | |
| Características y | Com | ponentes | |
| calificaciones | 1 | 2 | 3 |
| Pendientes . | 5-15 % | 0-15% | 0-51% |
| Clase de drenaje | buena | buena | moderada |
| Profundidad a la roca | | < 0.5 m | 1-2 m |
| · · · · · · · · · · · · · · · · · · · | franca | | arcillosa |
| Textura: superficial | | | |
| Granulometria subsuelu | ateillosa | (roca) | arcillosa |
| Fragmentos rocosos del pertil | 5-20% | 5 20 % | , (5% |
| Capacidad de retener agua | 10-15 cm | 5-10 cm | 15.20 cm |
| Permeab, lidad | mod. lenta | mod. lenta | lenta |
| Inundaciones Encharcamientos | hunca | hunca | h unc a |
| Reacción | lig. àcida | lig. scido | neutra |
| Saturación de bases | 2/t2 | 2/1/2 | 21+2 |
| Sales Sodio Atuminio | - | | _ |
| • | fuerte | mux L. 1 | |
| Grado de limitaciones perennos para cultivos andes | moderado | muy fuerto | moderado ligero |
| para pastos | moderado | fuerte | moderado |
| para mecanización | moder-do | moderate | ligero |
| Susceptibilidad a erosion_ | media | media | baja |
| Limitaciones para uso | segula | probabled | 5 = 7 41 8 |
| | peridientes | Sequia | |
| I El sixtecta con la mosa | Ar. E 6 | pondiorte: | |
| 1. El contacto con la roca n | | | |

11. El rentacto cun la roca no es lítico en istos casos.

Gazara Lina

| Simbolo: I19 |
|---|
| Ubificación: |
| Componentes: 1. Typic Ustropepts 2. Typic Hiplustolts |
| 3. Verter Ustropopts |
| Parsaje: |
| Material de partida: Material subyacente: |
| Flevación: Temperatura media anual: |
| Meses secos: |
| Caracteristicas Componentes 2 3 |
| Pendientes |
| Clase de drenaje |
| Profundidad a la roca |
| |
| - subsuelo Fragmentos rocosos del perfil |
| Capacidad de retener agua |
| Termes bilidad |
| Inundaciones Encharcamientos |
| Reacción Saturación de bases |
| Grado de limitaciones |
| para cultivos perennes |
| para cultivos anuales_ |
| para pastos |
| para mecanización |
| Susceptibilided a exosion |
| imitaciones para uso |

| Componentes: 1. Fluventic Ustroportis 2. Fluvaguentic Ustropopts 3. Typ Usti prammer's Paisaje: Material de partida: Material subyacente: Elevación: Temperatura media anual: Precipitación media anual: Meses socos: Caracteristicas Pendientes Clase de drenaje. Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosis del perfil Capacidad de retener agua Permea bilidad Inundaciones Encharcamientos. Re acción Saturación de bases Grado de l'initaciones para cultivos perennes para cultivos anuales para pastos para mecanización Susceptibilidad a ensión | _ | Simbolo: 1 |
|---|---------------------|--------------------|
| 2. Fluvaquentic Ustropepts 3. Jyp Usti psamuerts Paisaje: Material de partida: Material subyacente: Elevación: Temperatura media anual: Precipitación media anual: Meses socos: Compon Caracteristicas Pendientes Clase de drenaje. Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosis del perfil Capacidad de retener agua Per meabilidad Inundaciones Enchaicamientos. Re acción Saturación de bases Grado de limitaciones para cultivos perennes para pastos para mecanización | | Ubificación: |
| Paisaje: Material de partida: Material subyacente: Elevación: Temperatura media anual: Precipitación media anual: Mesos socos: Compon Caracteristicas Pendientes Clase de drenaje Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosis del perfil Capacidad de retener agua Per mea bilidad Inundaciones Enchaicamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para pastos para mecanización | equentic Ustropepts | Componentes |
| Material de partida: Material subyacente: Elevación: Temperatura media anual: Precipitación media anual: Meses scos: Compon Caracteristicas Pendientes Clase de drenaje Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocusis del perfil Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para pastos para mecanización | | |
| Material subvacente: Flevación: Temperatura media anual: Precipitación media anual: Meses secos: Compon Caracteristicas Pendientes Clase de drenaje. Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosis del perfil Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para mecanización | | Paisaje: |
| Temperatura media anual: Precipitación media anual: Meses secos: Compon Caracteristicas Pendientes Clase de drenaje Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosos del perfol Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | Material subya |
| Meses sccos: Compon Caracteristicas Pendientes Clase de drenaje Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocusis del perfil Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Reacción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | Temperatura |
| Caracteristicas Pendientes Clase de drenaje. Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosos del perfol Capacidad de retener agua Permea bolidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para mecanización | · | |
| Clase de drenaje. Profundidad a la roca Textura - suelo - subsuelo Fragmentos rocosos del perfol Capacidad de retener agua Permeabolidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para pastos para mecanización | <u> </u> | |
| Textura - suelo - subsuelo Fragmentos rocosos del perfil Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | |) Clase de dren |
| - subsuelo Fragmentos rocusis del perfil Capacidad de retener agua Permeabilidad Inundaciones Encharcamientos Reacción Saturación de bases Grado de limitaciones para cultivos perennes para pastos para mecanización | | |
| Fragmentos rocosos del perfil Capacidad de retener agua Permea bilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para mecanización | | |
| Capacidad de retener agua Permea bilidad Inundaciones Encharcamientos Re acción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | |
| Permeabilidad Inundaciones Encharcamientos Reacción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | Fragmentos rocusos |
| Inundaciones Encharcamientos | | |
| Reacción Saturación de bases Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | |
| Grado de limitaciones para cultivos perennes para cultivos anuales para pastos para mecanización | | Reacción |
| para cultivos perennes para cultivos anuales para pastos para mecanización | | |
| para cultivos anuales para pastos para mecanización | | |
| para pastos | , | para cultivos |
| para mecanización | | |
| | | |
| | | Susceptibilidad a |
| Limitaciones para uso | | Limitaciones par |

| Nombre: | | | |
|------------------------------|------------------|------------------|------|
| | | | |
| Composicion: 1. Flavoric | Ustropopts | | 507 |
| 2. Fluvert. | H-plustalls | | 307. |
| 3. | · · · | | |
| | • | | |
| Paisaje: <u>Vegas</u> (p) | lancios do inui | - 120.5rl | |
| con pondierio | s de 0 | 5 % | |
| majerial de partida: | Alluvior | | |
| Material subvacente! | Iqual | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Comp | opentes | |
| calificaciones | | _2 | 2 |
| Pendientes | 0-5 7. | 0-5% | |
| Clase de drenaje | buena | buenz | 6 |
| rofundidad a la roca _ | >2 m | 72 n | |
| Textura: saperficial | franca | Franci | |
| Surfe | | | |
| Franclametriasubsuelo | franca | france | |
| ragmentos rocosos del perfil | 157. | 1 59. | |
| apacidad de retener agua _ | 15-20 cm | 15:0cm | |
| ermeabilided | mid. lents | med lent. | |
| nundaciones Encharca mientos | Comunes | comunes | . 1 |
| eacción | ligiscit. | 119. scida | |
| aturación de bases | 2/4 | 2/12 | - |
| oles Sodio Atuminio | | | |
| rado de limitaciones | r. J | | |
| para cultivos anales | Juerto 11gero | Juerte 1,700. | |
| para pastos | modorado | modriado | |
| para mecanización | ligere | haero | |
| iscoptibilidad a erosion | baja | baja | |
| mitaciones para uso | Sequia | Seguia | |
| | | - 7 C/ A | |

| rombre; | | | |
|---|-------------|--------------|------|
| Composición: 1. Fluventic Lis | stic Dyst | ropopts | 60% |
| 2. Typic Ust. | fluverits | | 207: |
| 3. | | | |
| | | | |
| Paisaje: Vegas (plan | cies de inv | , dacion) | |
| con pendiertes de | 0:570 | | |
| Material de partida: Al | uvión | | - |
| Material subvacente! | 770-1 | | |
| Elevación 1Do O | à | m | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos : | | | |
| Características y | Com | panentes | |
| calificaciones | | 2 | 3_ |
| Pendientes . | 0-57. | 0-570 | |
| Clase de drenaje | buena | buers | |
| Profundidad a la roca | >2 h | > 2 m | |
| Textura superficial | Franca | granca | |
| | | (gaijarresa) | |
| Granulometria | Franca | 112710 | |
| Fragmentos rocosos dal perfil | 5-20% | 20-35.7 | |
| Capacidad de retener agua | 15-20 Ch | 10-15 cm | |
| Permeabilided | mod. lerte | moderada | |
| Inundaciones Encharcamientos | raras | commes | |
| Reacción | lig. acide | lig. acida | |
| Saturación de bases | media | 5142 | |
| Sales Sodio Aluminio | - | | |
| Grado de limitaciones para cultivos anuales | moderado | Juerte | |
| para cultivos anuales | ligero | 11 goru . | |
| para pastos | moderado | meds.ado | |
| para mecanización | 1. yere | modoredo | |
| Susceptibilidad a erosion | baja | 2013 | |
| Limitaciones para uso | Seguia | Seguia | |
| | , | inundación-s | |
| | | fragrands | |

تزم ۲ م م م د ل کی

Simbolo: 123

Nombre.

| Composicion: 1. Little Ust | 10 pt = J | 30 | 70 |
|-------------------------------|----------------------|---------------------|---------------------|
| 2. Lithe Ust | or till 1 | | 70 |
| 3. V., +1c | Ustropope | 20 | 7. |
| Paisaje: Llanura or | ndu l. da | | |
| con pordior la | · do C = | 157, | |
| Material de partida: Mate | ristes reside | eles, coluviales | · alunalo |
| Malerial Subjacente! 10 | Рэ | | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Meses secos ! | | | |
| Características y | (0 % | h 1 | |
| calificaciones | 1 | ponentes 2 | .3 |
| Pendientes | 0-1570 | 0-15% | 0-3 76 |
| Clase de drenaje | buens | buens | modereda |
| rotundidad a la roca _ | <0.5 m | (0.5 m | 1-2 m |
| Textura: saperficial | . Franca | france | Secilloss |
| Granulometria subsurlo | (roca) | (roca) | 210,11053 |
| Fragmentos rocosos dal pertil | 5.207, | 5.207, | <5% |
| apacidad de retener agua | 5-10 cm | 0-5cm | 15.20 c |
| Permeab, lidad | rood lents | trad lesta | 1enta |
| nundaciones Encharcamientos_ | hunce | hunca | nunci |
| Reacción | lia acida | 1 sideida | hastra |
| aturación de bases | a)ta | 3172 | alta |
| | | | |
| para cultivos para cultivos | no, foorle fuorte | Arriver de | mederedo |
| para pastos | furite | hur fuerte | 11gen Visiter-du |
| para mecanización | moderado | re-odorat. | ligaro |
| usceptibilidad a erosión | tried 12 | = 172 | baja |
| imitaciones para uso | profunded | pre-tund ded | Seguia |
| | produciles | seguis pendo les | 7012 |
| El contecto con la roca | | 1200 - 108 | |
| This or todge casos. | | | |

| | h: | | | |
|--|---|----------|--------|-------|
| Component | es: 1. Vertic 2. | Ustroper | 1+5 | |
| | 3. | | | |
| Paisaje: | | | | |
| Material de | partida: | | | |
| Material su | byacente: | | | |
| rlevacion | | | , | |
| Temperatur | a media anual | ! | | |
| Precipitació | n media anual | | | |
| Meses seco | s: | | | |
| | | | Compon | entes |
| Caracterist | cas | | | 3 |
| Pendientes | . — | | | |
| Clase de dr | | | | |
| Dritt | | | | |
| Profundidad T 1 | | | | |
| Profundidad Textura - si | | | | |
| Textura - su | ielo | | | |
| Textura - su | bsuelo | | | |
| Textura - su - su Fragmentos roc | bsuelo osis del perfil | | | |
| Textura - su - su Fragmentos roc | bsuelo usis del perfil tener agua | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad | bsuelo usis del perfil tener agua | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad | bsuelo usis del perfil tener agua | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad Inundaciones E | bsuelo usis del perfil etener agua ncharcamientos | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad Inundaciones E Reacción | bsuelo usis del perfil etener agua ncharcamientos bases | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad Inundaciones E Reacción Saturación de Grado de lim | bsuelo usis del perfil etener agua ncharcamientos bases itaciones | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad Inundaciones E Reacción Saturación de Grado de lim para cultivos | bsuelo usis del perfil etener agua ncharcamientos bases itaciones s perennes | | | |
| Textura - su - su Fragmentos roc Capacidad de ro Permeabilidad Inundaciones E Reacción Saturación de Grado de lim para cultivos | bsuelo usis del perfil etener agua ncharcamientos bases itaciones s perennes | | | |

| Jim 6010 . | | |
|------------|--|--|
| Nombre: | | |

| Nombre: | | | |
|-------------------------------|------------------------|-----------------------------------|----------------------|
| Composición: 1. Typic] | dystropepts. | 40 | 7. |
| 2. B. Lithic | Troporthents U | 201 | 7. |
| 2. B. Lithic | Dustiopapts | | 7, |
| | | | |
| Paisaje: Montañas | | | |
| Material de partida: Mater | do 15 2 | 60 % | |
| Material de partida: Mater | ales coluviales | aluviales m | 318 10 13 |
| Material subvacente! Ro | c= saprolis | lica y du | . 3 |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos! | | | • • |
| Caracteristicas y | Comp | onentes | |
| cal.ficaciones | | _2 | 3 |
| Pendientes | 15-60% | 30-60% | 45-100% |
| Clase de drenaje | buena | burna | burro- |
| Profundidad a la roca _ | 1-2 m | <0.5 m | 1-2 m |
| Textura: superficial | arcillosa | are Mosa | franca |
| Granulometrissubscalo | arc, llosa | (roca) | franci |
| Fragmentos rocosos del perfil | 5-20% | 5-201/n | 20-35176 |
| Capacidad de retener agua _ | 15-20 cm | 5-10 cm | 10-15 cm |
| Permeab, lidad | mod. lenta | mod lent: | mod lent. |
| Inundaciones Encharca mientos | nunca | hunca | nurra |
| Reacción | f. acida | f acida | t. a'cida |
| Saturación de bases _ | media | media | media |
| Sales Sodio Aluminio | | | |
| Grado de limitaciones, | 1. com | bour for to | • |
| Grado de limitaciones, | ligin listerado | muy for to | Agris nesteration |
| para pastos | ligero | fuerte | 1:3510 |
| para mecanización | huy turte | may lunion | hoy for |
| Susceptibilidad a erosion_ | may aits | muralta | 1000 -112 |
| Limitaciones para uso _ | pendiertes 110 vies | pendion tos Firstend ded Invies | porder. |
| | | Fre wird das | 112:125 |
| 1. El contacto con la roca r | o es litieu en to | dus chees. | |
| Cordillera de Talamarco | At., | 5.7 3. 12 | |
| Par for | | | |

| Simbolo: 127 | |
|---|----|
| Nombre: | |
| Composición: 1. Aquic Dystropepts 70% | |
| 3. | |
| | |
| Paisaje: Terrazas la custres | |
| con perdintes de 0 = 5%. | |
| Material de partida: Aluvión y sedimentos lacustres | |
| Malerial subvocente! Laur | |
| Elevación i | |
| Temperatura anual: | |
| Precipitación anual! | |
| Meses secos! | |
| Características y Componentes | _ |
| Pendientes 0-27. | |
| | |
| | |
| | |
| Textura: superficial franca | |
| Granulometriasubsuelo arcillosa | |
| Fragmentos rocosos del perfil <57. | |
| Capacidad de retener agua 15-20 cm | 12 |
| Permesbilided Jentz | |
| Inundaciones Encharcamientos nunca | |
| Reacciónf. acida | |
| Saturación de basesmodia | |
| Sales Sodio Aluminio | |
| Grado de limitaciones moderado | |
| para cultivos inides moderado | |
| para pastos la ligero | |
| para mecanización ligero | |
| Susceptibilidad a erosion baja | |
| Limitaciones para uso drenaje | |
| 1/uviss | |
| 2 cidez | |

ligero

media

pendierins

Huvirs

moderado

119010

ligard

bajal

deenlia

tragmerios

para pastos

Susceptibilidad a erosion_

Limitaciones para uso

para mecanización.

| · • · · · · | · Símbolo: I29 |
|-------------|---|
| | Ubificación: |
| | Componentes: 1. Fluventic Dystropopts 2. Vertin Ustropopts 3. Fluverin : ispopi |
| | Paisaje: |
| | Material de partida: Material subyacente: Elevación: |
| | Temperatura media anual: Precipitación media anual: Meses se cos: |
| | Caracteristicas — Componentes — 2 3 |
| | Pendientes Clase de drenaje « Profundidad a la roca Textura - suelo |
| | - subsuelo |
| | Fragmentos rocosos del perfil |
| | Inundaciones Encharcamientos Reacción Saturación de bases |
| | para cultivos perennes para cultivos anuales para pastos |
| | para mecanización Susceptibilidad a elosión |
| | Limitaciones para uso |

Coil Hoir to Telining

Son Vito

profund ind

1124.5

| Nombre: | | | |
|---------------------------------------|----------------|--------------|------------|
| Composición: 1. Ovic Dy | strupents | | 60% |
| 2. Aeric Tr | zpaqur pts | | 20.70 |
| 3. | , | | |
| | | | |
| Paisaje: <u>Llanura</u> co | linosa | | |
| con perdientis | le 0 s | 30 7. | |
| Material de partida: Mala | orizlos alvina | les y ros | ا د د د |
| Material subvacente! | Iqual | | |
| Elevación I | • | | |
| Temperatura anual: | | | |
| recipitación anual! | | | |
| Meses sccos ! | | | |
| Características y | Com | ponentes | |
| calificaciones | | | 32 |
| Pendientes | 0-30% | | 0-5% |
| lase de drenaje | busia | | pobre |
| rofundidad a la roca | >2 1. | | >2 n |
| exture: superficial | arcillosa | | france |
| 5 0 e 1 0 - | | | |
| Francolometria subsuelo | arcillosa | | a +c///652 |
| ragmentos rocosos dal pertil | < 5 % | | 451. |
| apacidad de retener agua | 15-20 cm | | 15 20c |
| ermesbilidad | lerta | | lent: |
| nundaciones Encharcamientos | hunez | | raras |
| leacción | muy ficide | | f. acida |
| aturación de bases | baja | | baja |
| des Sodio Aluminio | | | |
| para cultivos april | moder-13 | in all radio | may tuerte |
| · · · · · · · · · · · · · · · · · · · | 2000 | -uerte. | fuer-le |
| para pastos | 113640 | 119000 | 11920 |
| para mecanización | moder do | fuerte | ligen |
| iscoptibilided a erosion | "ri adarida | alta | baja |
| imitaciones para uso | acidos | pendirutes | del-jo |
| • | pendientes | acidez | 1/4 01=5 |
| | 1127125 | 110005 | aridaz |

2 1200 A 12. 12 1000

Sales Sodio Aluminio

Grado de limitaciones fuerte para cultivos mediado

para pastos ligoro

pora mecanización modulado

Susceptibilidad a erosión inicipalia

Limitaciones para uso pordicios

277012

| Composición: 1. Ustic | Dystrope | e ts | 66170 | |
|-------------------------------|------------|-----------|---|--|
| 2. Ultic | H= plustal | | 26 % | |
| 3, | | , | | |
| | | | | |
| Paisaje: Terra=25 | artiques | | | |
| - 10x 10x | 100- | | *************************************** | |
| Material de partida: | 11,101 6/3 | linus | | |
| Material subvacente! | Jaux | | | |
| Elevación I | | | | |
| Temperatura anual: | | | | |
| Precipitación anual: | | | | |
| Meses secos! | | | | |
| Características y | | mponentes | 1 | |
| calificaciones | | _2_ | 3 | |
| Pendientes . | 0-5 | 0-5 | | |
| Clase de drenaje | burns | Luone | 6 | |
| rofundidad a la roca _ | >2 m | 1-2 m | | |
| Texturz' superficial | areillissa | - Irahea | | |
| عاون د | | | | |
| Granulometria subscilo | arrillus | arrillosa | | |
| Fragmentos rocosos dal pertil | <5% | 25% | | |
| Lapacidad de retener agua _ | 15-20cm | 15-20 cm | | |
| Permeab, lidad | lenta | 10nt | | |
| nundaciones Encharcamientos | hunca | nunca | | |
| Reacción | med. Scida | mod Reida | | |
| saturación de bases | media | 2/12 | | |
| ales Sodio-Atuminio | | | | |
| Grado de limitaciones | moderado | makerale | | |
| para cultivos percents | ligero | 1.7012 | | |
| para pastos | moderado | miedri-du | | |
| para mecanización | 119010 | Lacra | | |
| usceptibilided a erosion | baja | bein | | |
| imitaciones para uso | Seguia | 5-9013 | | |
| | Schles | | | |

Guarneste

Nicer-gue

Miccya Cratica

| Cara ' / A ! | | | |
|------------------------------|-------------------|---------------|------------|
| Composición: 1. Andu H. | umit ropepts | | 5070 |
| 2. Fluveric | Lustrozants | 2 | 070 |
| 3. Ander | Dystrojopis | | 0% |
| Paisaje: Planicies o | term - | 4 / | |
| Matanili pendiertes d | 0 - 20 0 | ecladas | |
| Material de partida: Al | 4×1 (n 1 | | |
| Material subvacente! | Tand | en1225 | |
| Elevación 1 | 3 90 21 | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | | | |
| calificaciones | <u> </u> | ponentes | |
| Pendientes. | 0-1507 | _2_ | _3 |
| Clase de drenaje | 0-15-7, | 0-5 7. | 5-309 |
| rofundidad a la roca | buenz >2 | buena | buera |
| Textura: anna from | >2 m | > 2 m | . 72 m |
| Texturz superficial | . Franca | France | Franca |
| Franclometria sulsuelo | 21/1/652 | France | /. |
| ragmentos rocosos del perfil | <51/ _e | | arc://osa |
| apacidad de retener agua | >20 cm | 5-20% | < 5 % |
| ermeabilidad | mod lenta | 15-20cm | >20 cm |
| nundaciones Encharca mientos | hunca | trod.lerta | med lenta |
| eaccion | f. acida | comunes | hatra |
| aturación de bases | media | mod.2cid2 | -1; |
| oles Sodio Aluminio | 1,1,5,1,1, | media | inche |
| rado de limitaciones | | | |
| para cultivos arados | ligero | moderado | 119010 |
| para pastos | | modoradu | ir oderedo |
| para mecanización | nodovado | ligero | 1.9010 |
| sceptibilided a erosion | | 113000 | - Juoite |
| mitaciones para uso | Media Huvias | baja Humas | 2/to |
| DILLACIONES MILES ILCS | | | perdirela |

Símbolo: M2 Ubificación: Componentes: 1. Fluvertin H-plustoils 2. Typic Argiustolls
3. Fluventic Ustropepts Paisaje: Material de partida: Material subvacente: flevación: Temperatura media anual: Precipitación media anual: Meses secos:_ Componentes Caracteristicas Pendientes Clase de drenaje Profundidad a la roca Textura - suelo - subsyelo Fragmentos rocusis del perfil Capacidad de retener agua ____ Permeabilidad Inundaciones Encharcamientos Reacción .-Saturación de bases Grado de limitaciones para cultivos perennes_ para cultivos anuales ____ para pastos para mecanización Susceptibilided a elosion Limitaciones para uso

| Simbolo: | |
|--|-------------|
| Nombre: | |
| | |
| Composición: 1. Fluvaquenta Hapladolls | 30 % |
| 3. 2. Fluvaquento Haplagoolls | 207. |
| 2. 3. Typic Tropa quepts | 30 7. |
| | |
| Paisaje: Vegas (planicies do inundeción) y terrazas costoras | pantanosos |
| con perdientes de 0 a 2 90 | |
| Material de partida: Aluvión | |
| Material subvacente! Inu! | |
| Elevación I De O a 20 m | |
| Temperatura anual: | |
| Precipitación anual: | |
| Meses secos ! | |
| Características y Componentes | |
| calificaciones 1 2 | 3 |
| Pendientes 0-27. 0-27. | 0-27. |
| Clase de drenaje Imperfecta muy pobre | muy pobre |
| | >2 m |
| Texture: superficial france france | trancs |
| | |
| Granulometria subsuelo franca franca | areillosa |
| Fragmentos rocosos del perfil 5-207. 5-20%. | < 5% |
| Capacidad de retener agua 15-20 cm 15-20 cm | 15-20 |
| Permeabilided modilents modilents | lenta |
| Inundaciones Encharcamientos comunes frecuertes | raras |
| Reacción mod. acida mod acida | S. arida |
| Saturación de bases alta alta | media |
| Sales Sodio Atuminio | |
| Grado de limitaciones moderado muy fuerte para cultivos anuales moderado muy fuerte. | muy fuerte |
| | houstorle |
| para pastos ligero fueite | Sue, te |
| para mecanización ligero muy fuerte | muy (uerto |
| Susceptibilidad a erosion baja baja | <u>baja</u> |
| Limitaciones para uso dieraje dimiaje | deraje |

| Composición: 1. Foxic Psi | la la 14 | | (, ¬ |
|-------------------------------|--------------|----------------------|---|
| */ | | | 607. |
| 2. Acric 7 3. | repaggepis | | 207, |
| <u> </u> | | | |
| Paisaje: Terrazas an | liques | | |
| con pendientes de 0 2 | | | |
| Material de partida: Alu | | | |
| Material subjacente! | | | |
| Elevación I | | | Marriero e companio contra e companio e |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Comi | ponentes | |
| cal.ficaciones | • | _2 | 3 |
| Pendientes | | 0-276 | |
| Clase de drenaje | buens a | | |
| rofundidad a la roca | 72 m | > 2 m | |
| Textura superficial | arcillosa | arcillosa | |
| · Swall | | | |
| Franclometria sissolo | arrillosa | ares bee | |
| Fragmentos rocosos del pertil | < 5 % | < 59 . | |
| apacidad de retener agua | 15-20 cm | 15-20cm | |
| Permeab, lidad | lents | lenta | |
| nundaciones Encharca mientos_ | nunca | comunes | |
| Reacción | Juesto mente | nueric monto | |
| saturación de bases | 620, 3 | media | |
| stes Sodio Aluminio | | | |
| Frado de limitaciones | Train to | . (, | |
| para cultivos | Surite. | may furte fuerte. | |
| para pastos | ligero | ir.oderado | |
| para mecanización | ligero | rederado | |
| usceptibilidad a erosión | baja | taj2 | |
| imitaciones para uso | acidez | dersie | |
| | Huvias | Horiza | |

Las. Sigh

| Nombre: | | | |
|------------------------------|-------------|----------|-----------|
| Composición: 1. Ustoxic | Pale humul | 1+5 | 7070 |
| 2. Aeric | | | 20%. |
| 3. | | | |
| | | | |
| Palsaje: Terrazas ant | iques diser | t-das | |
| con pendingles | do U a | 15 % | |
| Material de partida:Al | urion aiti | 740 | |
| Material subvacente! | | | |
| le vación 1 | | | |
| Temperatura anual: | | | |
| recipitación anual! | | | |
| Meses secos! | | | |
| aracterísticas y | Com | ponentes | |
| calificaciones | | 2 | 3- |
| Pendientes | 0-15% | | 0-270 |
| lase de drenaje | buera | | pobre |
| rofundidad a la roca | >2 m | | >2 m |
| Textura superficial | arc ilosa | . ? | Like Mass |
| Franulometria = " | A+11/052 | | 216. 032 |
| ragmentos rocosos del pertil | (54). | | < 57. |
| apacidad de retener agua | 15-20cm | | 15.20 |
| ermesbilidad - | lenta | | lente |
| nundaciones Encharcamientos_ | hunca | | comunes |
| Reacción | f.acida | | f. ácida |
| aturación de bases | baja | | media |
| ales Sodio Atuminio | | | |
| Grado de limitaciones | moderado | | m |
| para cultivos arales | moderado | | muy foods |
| para pastos | moderado | | nudoredo |
| para mecanización | mederado | moderado | ligero |
| uscaptibilidad a erosion | media | med/a | bosia |
| imitaciones para uso | seguia | 5.9216 | drenje |
| | acidez | pendada | scirles |
| | for i or t | acidez | |

| Nombre: | | | |
|-------------------------------|----------------------|--------------------|---------|
| Composición: 1. Plinthic | Palehun | u/15 | 407. |
| 2. Typic | 1.4 | | 467. |
| 3. | | | 707. |
| | , | | |
| Paisaje: Colinas que | | | |
| Material de partida: Mater | de 15 = 60 | -1:1 | : / |
| Material subjecente! Roc | ieros coluvintes | s, divinios y hos | 11121-5 |
| Elevación I | e sapromit | <u>e</u> | |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos! | | | |
| Características y | Comp | ponentes | |
| calificaciones | | _2 | 3_ |
| Pendientes | 15.30 % | | |
| Clase de drenade | bunna | buera | |
| Profundidad a la roca _ | >2 m arcillosa | 1-2 10 | |
| Textura superficial | | a reillosa | |
| Granulometria subscite | arcillosa | 210://050 | |
| Fragmentos rocosos del perfil | < 51/ ₆ | 15% | |
| Capacidad de retener agua _ | >20 cm | >20 cm | |
| Permeab, lidad | lenta | · lenta | |
| Inundaciones Encharcamientos | huhra | nunca | |
| Reacción | f. acida | f. scida | |
| Saturación de bases | modia. | modia | |
| Sales Sedio Aluminio | | | |
| Grado de limitaciones | 11 30 50 | 11000 | |
| para cultivos anasios | /1 7e to moderado | 11gers moderale | |
| para pastos | 1, 2000 | ligero | |
| para mecanización | tuerte | muy fuerte | |
| Susceptibilidad a erosion | alta | muy alto | |
| limitaciones para uso | pendir. tes | pendiontos | |
| | acidez | acidez | |

Circurdso 5

| Composición: 1. Typic T | ropohumults | | 40% |
|---|---------------|----------------|----------|
| | tumitrop-pts | | 40% |
| 3. | | | |
| | | | |
| Paisaje: Montaras | | | |
| con pendientes | de 15 = | 60%. | |
| Material de partida: Materi | ala coluviale | s, aluviales y | residuos |
| Material subjecente! Ro | ca saproli | 4100 | |
| Flevación 1 | · | | |
| Temperatura anual: | | | |
| Precipitación anual: | | | |
| Meses secos ! | | | |
| Características y | Comp | onentes | |
| cal.ficaciones | | _2 | _3 |
| Pendientes | 15-30% | 30-60% | • |
| Clase de drenaje | buena | buci | . |
| Profundidad a la roca | >2 hi | 1-2 10 | |
| Textura superficial | arcillosa | arcillosa | |
| | | | |
| Granulometrianimolo | arcillosa | 210,1/052 | |
| Fragmentos rocosos dal perfil | < 5170 | 5-20% | |
| Capacidad de retener agua | >20 cm | 15-20 cm | |
| Permesb, lidad | lenta | mod. lenta | |
| Inundaciones Encharcamientos_ | hunca | nunca | |
| Reacción | t. acida | t. acida | |
| Saturación de bases | media | media | |
| Salos Sodio Aluminio | | | |
| Grado de limitaciones perennos para cultivos anudes | ligero | 119010 | |
| | moderado | moderada. | - |
| para pastos | ligero | ligero | |
| para mecanización | fuerte | muy funda | |
| Susceptibilidad a erosion | ·2/15 | muy alta | |
| Limitaciones para uso | pendior to. | pord or or | |
| | Muvies | Harles | |

| Simbolo: U5 | | |
|-------------------------------|-------------------|---------|
| Nombre: | | |
| Mombre: | | |
| Composición: 1. Typir | r.l i =. | C/A / 1 |
| _ / | 1218 (10) | 801% |
| <u>2.</u> 3. | | |
| | | |
| Paisaje: Terrazas - Mig | 1 1 | |
| · alsage · | U25 6 201808 | |
| Material de partida: Alu | W.C. | |
| Material subvacente! 7 | | |
| Elevación I | 9021 | |
| Temperatura anual: | | |
| Precipitación anual! | · | |
| Meses secos ! | | |
| | | |
| Características y | Componentes | |
| <u>calificaciones</u> | C- 15 | 3 |
| Pendientes . | | |
| Clase de drenaje | buenz | |
| Profundidad a la roca | >2 m errillosa | |
| Textura superficial | | |
| | | |
| Granulometriasubsulu | atcilloss | |
| Fragmentos rocosos del pertil | < 5% | |
| Capacidad de retener agua | 15-20 im | |
| Permesbilidad | lent: | |
| Inundaciones Encharcamientos_ | nunci | |
| Reacción | facida | |
| Saturación de bases | media | |
| Sales Sodio Aluminio | | |
| Grado de limitaciones | ligero | |
| para cultivos anuales | moder-do. | |
| para pastos | ligaro | |
| para mecanización | trodorado | |
| Susceptibilidad a erosion | media | |
| Limitaciones para uso | pindorio | |
| | acidez | |
| | llurins | |

San Franch Questi

Guarteste

Grado de limitaciones

para pastos

Susceptibilidad a erosion_

Limitaciones para uso

para cultivos polos ruitos

para mecanización

may forte moderato

moderado

ligero.

baia

seguia toxtura may lar, e

11 - de 12 de 5

in Armita

1. 1510

leia

Simbolo: V2

| N | 0 | m | 1 | ۲ | e | : | |
|---|---|---|---|---|---|---|--|
| | | | - | | | • | |

| Composición: 1. Typu Po | Husterts | | 1407 |
|---------------------------------|-----------------|----------------|------------|
| 2. Ustic No | | | 207. |
| 3. Vertic U | | | 207. |
| | | | 20/1 |
| Paisaje: Meseta ondui | lada con co | linas boios y | valles |
| Matan I la mantila ! Al | d. 0 = 15 | 7. | |
| Material de partida: Muri | in relates 2 to | etro y con you | • |
| Material subjecente! | 1-00/ | 7 | |
| Elevación I | | | |
| Temperatura anual: | | | |
| Precipitación anual! | | | |
| Meses secos ! | | | |
| Características y | Com | ponentes | |
| calificaciones | | _2 | 3 |
| Pendientes | 0-57. | | 0-5% |
| Clase de drenaje | Imperdecia | bur. | rnoderado |
| Profundidad a la roca _ | >2 m | >2 m | 72 % |
| Texture superficial | 2101/052 | 2 7:1/052 | arcillosa |
| Granulometria subsui | 270,11052 | exerllos: | arcillos2 |
| Fragmentos rocosos del pertil _ | <51/2 | < 5% | < 5 % |
| Capacidad de retener agua _ | 15-20 cm | >20 11. | 15-20 cm |
| Permeab, lided | muy lenta | mod. losts | · lerta |
| Inundaciones Encharcamientos | raras | hurr: | hunca |
| Reacción | lig. ácida | mud acida | mod. acids |
| Saturación de bases | alta : | media | 2/12 |
| Sales Sodio Atuminio | | • | |
| Grado de limitaciones | fuert. | ligen | mider.do |
| para cultivos inclis | ligen | ligero. | ligero |
| para pastos | moderado | ligero | moderado |
| para mecanización | ligero | trodevado | 11900 |
| susceptibilided a erosion | boja | pais | baja |
| Limitaciones para uso | tastur: | - liento | 50/010 |
| | sequia | 5-9412 | · |

Viv Central Sar Just Itoras





